The following organisations participated in the development and assessment of the SWMBA and subsequent waste-management-options consultation and final Area Waste Plan.

➔ Dumfries and Galloway Council
➔ East Ayrshire Council
➔ North Ayrshire Council
➔ South Ayrshire Council
➔ Scottish Enterprise Dumfries and Galloway
➔ Scottish Enterprise Ayrshire

Prepared by SEPA
March 2003
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Foreword by Ayrshire, Dumfries & Galloway
Waste Strategy Area Group Chair

I am very pleased to present the first Area Waste Plan for Ayrshire, Dumfries and Galloway. Not least because this document has been prepared as part of a pioneering collective approach to the development of an Area Waste Plan which aims to achieve the objectives of the National Waste Strategy for Scotland (NWS:S). The geographical area covered by this plan matches the local authority boundaries for North Ayrshire, East Ayrshire, South Ayrshire and Dumfries and Galloway Councils. The membership of the group developing the plan, therefore, aimed to reflect the social, economic and political responsibilities of that area.

The development of this plan has taken place during a period of radical change. Scotland, with its abundance of cheap landfill, has a poor record in its use of waste resources which have until now, mostly been consigned to landfill sites at the end of their useful life. European environmental policy seeks to change this through the reduction of waste to landfill by using waste in recycling, composting and energy recovery. It is likely there will be a financial cost associated with this change. It is hoped, however, that local people will see that these additional costs are outweighed by the long-term benefits, including a cleaner and healthier environment. Certainly the response to consultation on the draft plan was extremely supportive of the proposal put forward. In particular people want to see more recycling and want to see the provision of suitable facilities that will allow them to recycle.

The local authorities are responding positively to the challenges we face in moving towards a more sustainable form of waste management. The comments received in the consultation and the support given by the public, have allowed us to seek to address the issues involved in advance of the legislative implementation dates. They are looking to reduce our position of high reliance on landfill – some 95% in 1998 to 28% by 2020. During that period recycling is set to rise to at least 52%.

The plan acknowledges the need to raise public awareness of the issues surrounding waste and the need to educate everyone on how they can make their personal contribution to the realisation of the plan by reducing the quantity of waste generated and by participating in recycling schemes.

All of us, as waste producers, have a responsibility to ensure the successful delivery of this plan and the shift to more sustainable waste-management practices. The large and extremely positive nature of the response to the consultation augurs well for the future.

Alastair Dewart
Local Authority Liaison Unit Manager, SEPA
Chair Ayrshire, Dumfries and Galloway Waste Strategy Area Group
Foreword by Scottish Executive

Currently almost all of Scotland’s household waste goes to landfill sites. This has been a cheap and – for most of us – convenient way of putting waste out of sight and out of mind. But disposing of unsorted refuse in this way is, quite literally, a waste of the world’s resources. It is also a potent source of greenhouse gases and other emissions to the environment with waste management (mainly from landfills) contributing almost a quarter of the total amount of methane emitted in Scotland each year.

Moving to a position where we produce less waste, reuse and recycle more and recover value from as much as possible of what is left is at the heart of the Scottish Executive’s approach to sustainable development. Nationally we have set a target of recycling or composting 25% of Scotland’s waste by 2006, but we aim to move beyond that to achieve higher levels of recycling and composting and minimise our use of landfill. These are goals that are wholeheartedly supported by the Scottish people. In the recent Executive survey of public attitudes on the environment over two-thirds of people indicated that they were worried or very worried about waste management issues. Many already support recycling and composting initiatives by local authorities and the community sector. Opinion surveys show that more than 80% of people would participate in kerbside recycling if the necessary facilities were in place.

The change cannot be achieved overnight. It will need investment in new services and new facilities and in the development of markets for recycled materials. The Executive has allocated more than £230m over the next three years for these purposes. The change also needs a change of culture so that sorting our waste becomes a part of daily life for all of us. And crucially it must be based on thorough planning taking full account of local circumstances.

The preparation of this Area Waste Plan for Ayrshire, Dumfries and Galloway along with 10 other area plans and the National Waste Plan, has been the essential first step on the path to change. The Plan is the product of intensive work by East Ayrshire, North Ayrshire, South Ayrshire, and Dumfries and Galloway Councils, and the Scottish Environment Protection Agency to identify the best practicable environmental option for waste management in Ayrshire, Dumfries and Galloway. Its completion is a testament to the potential of partnership working across local authority, organisational and sectoral boundaries and all participants deserve credit for the parts they have played. The exercise has also generated extremely high interest amongst the general public in waste issues, partly as a result of the area groups organising many local meetings, exhibitions, leaflets and consultations.

The programme of change set out in this plan and its counterparts is a challenging one. But it is one, which by building on the partnerships that have been established at national and local level by the waste planning process, we can and must achieve.

Ross Finnie
Minister for Environment and Rural Development

Ayrshire, Dumfries and Galloway Area Waste Plan
Executive Summary

Delivery of the aims and objectives of the National Waste Strategy: Scotland, is being driven by the development and implementation of an Area Waste Plan for each of the 11 waste strategy areas. Together they will provide a coherent and integrated strategy for dealing with Scotland’s waste in the long term. SEPA has facilitated the formation and interaction of the Waste Strategy Area Groups (WSAGs), which have produced these plans to tackle issues of waste management at a local level. The Ayrshire and Dumfries and Galloway WSAG prepared this Area Waste Plan (AWP) following nationally determined guidance. The process was a voluntary consultative and consensual driven system, with aspirations embracing opinions of all stakeholders i.e. local people, businesses and organisations. This was driven by use of Stakeholder Fora, who have independently appraised the system and developed their own response to the draft AWP and by extensive consultation. The results of the consultation have been reported on and incorporated into the Area Waste Plan (Annex 4 provides links to these and other associated reported).

To date the focus of the AWP has been on the wastes that are currently handled by the local authorities i.e. Municipal Solid Waste (MSW). Other wastes, such as industrial and special wastes, are not considered in detail due to a lack of comprehensive data. Further work will be required to develop waste-management options for these, once quantification and analysis has been completed. SEPA has initiated a number of priority waste stream projects to tackle these issues and now has a formal Waste Data Strategy to gather and analyse the data required.

The principle of sustainable development is now fully embedded at all levels of government thinking and policy-making. The Scottish Executive recognises that effective resource use is a crucial element of sustainable development and therefore set the following objective within their Spending Proposals for 2003–6:

**Ensure progress towards sustainable waste management in Scotland and achievement of EU landfill reduction targets by 2010, 2013 and 2020.**

The Executive therefore set an overall national target to increase the amount of waste collected by local authorities which is recycled or composted to 25% by 2006.

The methodology for choosing the Best Practicable Environmental Option (BPEO) for waste management was introduced in the AWPning process. This process takes environmental, economic, technical and social factors into account when considering waste-management problems. The BPEO decision provided a flexible framework to manage wastes until 2020. In order to deliver the BPEO, a staged approach is necessary, primarily because of the timescales involved and the changes that will take place in technology and legislation over this period.

One of the key issues driving this process is the Landfill Directive. This requires an incremental diversion of Biodegradable Municipal Solid Waste (BMW) from landfill. The target years are set in the Landfill Directive and, assuming the UK takes a 4-year derogation on the targets, the target dates will be for 2010, 2013 and 2020. The four local authorities within the WSAG are all operating to very different political, contractual and geographical constraints. The BPEO chosen, has therefore, been designed to allow maximum flexibility to each of the authorities in determining how they implement the BPEO for the different target dates. It should be noted that some of the authorities have sought to implement their system so as to achieve 2020 targets as quickly as possible and thereafter adapt to greater recycling and source separation, etc., whereas others have implemented a phased approach focusing on 2010 and 2013 targets.

Description of BPEO

As the results of the outcomes from the consultation process and feedback from the Stakeholder Fora Reports the WSAG has moved to adopt the generic BPEO framework outlined in Figure 1. It should be noted that this model is hierarchy led. It stays at a generic level. By this we mean the model sets the principles to be followed in achieving the BPEO. It does not go down to the detailed level of specifying plant and facilities. This approach allows each of the authorities to put forward its detailed proposals, including specific technologies, facilities, possible partnership working, so that they can be judged against the generic model. The model places an emphasis on the minimisation of waste at source and thereafter seeks to limit or minimise the amounts of materials falling to a lower order of the hierarchy. The key values being expressed in this model are: commitment to reducing waste at source, a commitment to increasing the reuse, recycling and/or composting of materials through the use of source separated collection systems, a commitment to ensuring that the remaining waste, i.e. the mixed waste, does not go direct to end point disposal. In keeping with the aims of the hierarchy, mixed waste should be treated so as to further recover materials for recycling and/or composting, etc., thereafter consideration should be given to the further recovery of value from the waste. It is envisaged that the reliance on landfill be minimised, but no material will go directly to landfill and that only the residuals and unsuitable elements that fall out of the processes would end up being landfilled.

Exec. Summ. Figure 1 – Generic Model
The model does not assume that every element will be deployed in every part of the area. Instead, it assumes that the most suitable elements are selected and a mechanism put in place to ensure that processes can be scaled up or down or re-routed to other elements in response to changing markets or improvements to technologies.

The commitment of each of the local authorities to this type of approach, as well as to the consultation requests for more detail, is clearly demonstrated in their proposals, the specific targets they have identified for their area and the facilities they are aiming to introduce, are set out in Chapter 3.

**Diversion of Waste from Landfill**

The overall scale of the task and achieving the EC landfill diversion target should not be underestimated. Table 1 sets out the amount of BMW that would have to be diverted. Given the uncertainty surrounding factors controlling waste growth, the figures were modelled on waste growth at an upper limit of 2% (as set out in the Strategic Waste-management Baseline Assessment – SWMBA 2001). This table demonstrates the impact even a small increase in waste growth can have on the overall tonnages that require to be dealt with. The proposals being put forward by the local authorities have identified specific targets as a means of achieving this diversion and judging their performance. These are set out in Table 2.

**Exec. Summ. Table 1 - BMW Diversion Requirements**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total MSW</th>
<th>By 2010</th>
<th>By 2013</th>
<th>By 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>310,100</td>
<td>417,000</td>
<td>443,000</td>
<td>509,000</td>
</tr>
<tr>
<td>Total BMW</td>
<td>186,000</td>
<td>251,000</td>
<td>266,000</td>
<td>305,000</td>
</tr>
<tr>
<td>BMW Diversion</td>
<td>111,000</td>
<td>173,000</td>
<td>240,000 (max projection)</td>
<td></td>
</tr>
<tr>
<td>BMW Landfill</td>
<td>140,000</td>
<td>93,000</td>
<td>65,000</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data from SWMBA 2001 Appendix 2 (rounded to nearest thousand)

**Indicators**

To ensure that the objectives of the AWP will be achieved, the WSAG will need to periodically review progress. As such, a regular monitoring and review system will have to be set up and this is specifically one of the action points identified by the WSAG, and indeed was one of the outcomes from the consultation process.

Whilst the WSAG is reluctant to impose fixed targets without a national framework to follow, it has acknowledged that performance indicators are required so as to gauge the progress of the plan. They have, therefore, set out a number of indicators, in addition to recycling and diversion targets. The full list of performance indicators is given in Table 2.

The local authorities are setting a clear and ambitious commitment to maximising the recycling of waste and minimising what goes to landfill. By 2020 the group is aiming to have reduced the areas landfill dependency from over 90% to some 28%.
**Exec. Summ. Table 2 – Performance Indicators Combined Waste Strategy Area**

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>By 2010</th>
<th>By 2013</th>
<th>By 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>EC Diversion Target (as % BMSW)</em></td>
<td>33%</td>
<td>54%</td>
<td>65%</td>
</tr>
<tr>
<td><strong>EC Diversion Target (as % of total MSW)</strong></td>
<td>19%</td>
<td>33%</td>
<td>40%</td>
</tr>
<tr>
<td>Recycling (dry recyclate)</td>
<td>19%</td>
<td>23%</td>
<td>34%</td>
</tr>
<tr>
<td>Composting (and home composting)</td>
<td>14%</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>Total recycling</td>
<td>33%</td>
<td>39%</td>
<td>52%</td>
</tr>
<tr>
<td>MSW treatment****</td>
<td>51%</td>
<td>49%</td>
<td>44%</td>
</tr>
<tr>
<td>Segregated collection (as % of households)</td>
<td>74%</td>
<td>84%</td>
<td>91%</td>
</tr>
<tr>
<td>Landfill</td>
<td>59%</td>
<td>46%</td>
<td>28%</td>
</tr>
<tr>
<td>Total waste diverted from landfill</td>
<td>41%</td>
<td>54%</td>
<td>72%</td>
</tr>
</tbody>
</table>

* The EC Diversion Targets for BMW reduction are 25% by 2010, 50% by 2013 and 65% by 2020, against a 1995 baseline. The targets shown here are the aspirations of the authorities, i.e. what they aim to achieve.

** BMW is regarded as 60% of MSW for calculation purposes.

*** SAC consider that segregated kerbside collection of wastes is treatment of wastes and will consider further treatment methods after 2013

**** % MSW treatment is the amount of mixed waste (not segregated) that will go for further treatment.

The shift in how the authorities are proposing to manage MSW over the period of the plan, is best represented in Figure 2 below.

**Exec. Summ. Figure 2 – Proposed Changes in How Waste DEALT with Between 1998 and 2020**

Note: recovery technologies can yield compost and recycling outputs as well as weight losses due to water and carbon dioxide vapour hence the lower percentage than in performance indicators (to avoid double counting).
To put this ambitious plan into action the WSAG has identified the additional facilities most likely to be required for the area, as set out in the Table 3 below.

**Exec. Summ. Table 3 - Maximum Additional MSW Facilities Required**

<table>
<thead>
<tr>
<th></th>
<th>EAC</th>
<th>NAC</th>
<th>SAC</th>
<th>DGC</th>
<th>WSAG</th>
<th>Maximum handling capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compost</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>156,000 tonnes</td>
</tr>
<tr>
<td>MRF</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>224,000 tonnes</td>
<td></td>
</tr>
<tr>
<td>Transfer stations</td>
<td>2-3</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td>1-2</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>284,000 tonnes</td>
<td></td>
</tr>
<tr>
<td>Landfill</td>
<td>1</td>
<td>2*</td>
<td>1</td>
<td>9</td>
<td>142,000 tonnes</td>
<td></td>
</tr>
<tr>
<td>C/A and/or recycling</td>
<td>2-3</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

*extension and redevelopment of existing sites only
Source: Summary of local authority Practices and Plans - Annex 6

The proposed facilities are the maximum number of additional facilities needed to implement the BPEO. Each of the authorities will put forward its detailed proposals, including specific technologies, facilities and possible partnership working, to be judged against the generic BPEO model developed in the AWP. The model itself does not assume that every element will be deployed in every part of the area.

It should be noted that the table of waste-management facilities is indicative only, as contractual arrangements between local authorities and waste-management industry, funding and resourcing issues, etc., waste-growth issues and the like may introduce a slight variation on the scale of facilities required to achieve the diversion targets. Schematics of the likely additional plant at the modelled maximum waste tonnages are given in Figures 3-5.

**Exec. Summ. Figure 3 - Schematic of Likely Additional Plan and Capacity by BPEO 2010**
Exec. Summ. Figure 4 - Schematic of Likely Additional Plan and Capacity by BPEO 2013

MSW Tonnage 443,000t

Key
- Additional Plant
- MSW Tonnage (from SWMBA)

2013
- Segregated Collection
  - Kerbside
  - Bring/CAS recycling
  - Compostable Wastes
- Mixed Waste Collection 220,000t
- MRF Et/or Transfer 226,000t
- Mixed Waste Treatment 217,000t
- Energy Recovery 38,000t
- Landfill 204,000t

Recycling 102,000t
Compost Plant 99,000t

Exec. Summ. Figure 5 - Schematic of Likely Additional Plan and Capacity by BPEO 2020

MSW Tonnage 508,000t

Key
- Additional Plant
- MSW Tonnage (from SWMBA)

2020
- Segregated Collection
  - Kerbside
  - Bring/CAS recycling
  - Compostable Wastes
- Mixed Waste Collection 278,000t
- MRF Et/or Transfer 224,000t
- Mixed Waste Treatment 284,000t
- Energy Recovery 38,000t
- Landfill 142,000t

Recycling 172,000t
Compost Plant 156,000t

Note: losses of water vapour and CO₂ are attributed to the output material, e.g. the 38,000 tonnes going to energy from waste comprises 30,000 tonnes of refuse-derived fuel and 8,000 tonnes of losses. See chapter 3 for full details.
BMW Landfill Targets

The main statutory target that the local authorities must achieve, is the diversion of biodegradable material away from landfill. This will be measured as the amount landfilled. The BPEO put forward by the waste strategy group delivers those targets. It has been modelled against a worst-case scenario of a continual 2% annual growth in waste over the period of the plan and has been found to be robust enough to deliver the targets with a margin of safety. (see Table 4 below).

Conclusions

The Plan outlines the framework required to move from the current practices of waste management to an integrated system, which will shift the emphasis towards resource management. The use of these resources should bring about economic, environmental and social benefits, through the elements of value recovery – recycling, composting and energy production. The magnitude of this change is very substantial. All sectors of industry and society will have to play a significant part, from waste reduction to the efficient operation of the waste-management facilities. This framework provides guidelines within which change can be effected and progress can be monitored.

Signpost to this Plan

This AWP has 5 main parts:

Section 1 ➔ Sets out the background to the AWP in the context of the Ayrshire, Dumfries and Galloway Area.

Section 2 ➔ Summarises the strategic framework and key drivers behind the development of the AWP.

Section 3 ➔ Details the BPEO for the management of the MSW.

Section 4 ➔ Covers wastes that are not included in the BPEO.

Section 5 ➔ Sets out the way forward to implementing the AWP.

### Exec. Summ. Table 4 - BMW Diversion Targets

<table>
<thead>
<tr>
<th>Target Years</th>
<th>BMW Permitted to Landfill*</th>
<th>BMW Landfilled (in accordance with BPEO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>By 2010</td>
<td>140,000</td>
<td>74,000</td>
</tr>
<tr>
<td>By 2013</td>
<td>93,000</td>
<td>62,000</td>
</tr>
<tr>
<td>By 2020</td>
<td>65,000</td>
<td>43,000</td>
</tr>
</tbody>
</table>

*from SWMBA 2001
Formation of Waste Area Strategy Group with remit to prepare Area Waste Plan

Initial consultation with waste industry and establishment of base information

Initial consultation with waste industry and establishment of base information

Decision to focus on development of strategy to deal with Municipal Solid Waste

Decision to focus on development of strategy to deal with Municipal Solid Waste

Stakeholder consultation August 2002

Stakeholder consultation August 2002

Specialist consultancy studies undertaken

Specialist consultancy studies undertaken

Develop the actions and initiatives outlined in the Plan

Develop the actions and initiatives outlined in the Plan

Area Waste Plan Finalised - November 2002

Area Waste Plan Finalised - November 2002

Implementation

Implementation

Review of Performance

Review of Performance

Strategic Waste Management Baseline Assessment - May 2001

Strategic Waste Management Baseline Assessment - May 2001

Option Profiling and initial assessment of options to provide shortlisted options

Option Profiling and initial assessment of options to provide shortlisted options

Option Appraisal

Option Appraisal

Establishment of Best Practicable Environmental Option

Establishment of Best Practicable Environmental Option

Draft Area Waste Plan - July 2002

Draft Area Waste Plan - July 2002

Ayrshire, Dumfries and Galloway Area Waste Plan

Ayrshire, Dumfries and Galloway Area Waste Plan

AWP Process Ayrshire, Dumfries and Galloway

AWP Process Ayrshire, Dumfries and Galloway
Key Acronyms

Terms and abbreviations most frequently used.

**AWP**  
*Area Waste Plan*

The National Waste Strategy: Scotland 1999 established 11 WSAGs. Each Group was charged with producing an AWP presenting the strategic plan for the waste arising in that area based on National Waste Strategy: Scotland principles.

**BMW**  
*Biodegradable Municipal Waste*

Waste collected by local authorities that is capable of undergoing anaerobic or aerobic decomposition, such as food or garden waste and paper and cardboard, i.e. waste that rots. This is generally accepted to be 60% of MSW.

**BPEO**  
*Best Practicable Environmental Option*

The National Waste Strategy: Scotland 1999 defined the BPEO as the outcome of a systematic and consultative decision-making procedure, which emphasises the protection, and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term.

**MSW**  
*Municipal Solid Waste*

Means household waste and any other wastes collected by the local authority, or on behalf of the local authority.

**SWMLBA**  
*Strategic Waste Management Baseline Assessment*

An assessment and description of the existing waste management in an area. Examines waste arisings, waste-management facilities and capacities, imports and exports of waste, existing contract arrangements and demographics such as population and household numbers.

**SWAG**  
*Scottish Waste Awareness Group*

This Group has been tasked with planning and delivering public awareness campaigns on domestic waste management throughout Scotland.

**ADG WSAG**  
*Ayrshire, Dumfries and Galloway Waste Strategy Area Group*

A key component of the National Waste Strategy: Scotland was the establishment of 11 Area Waste Groups across Scotland. The groups are charged with making the national strategy a reality at local level, developing local solutions in response to local needs. The ADG WSAG consists of the following partners.

- **NAC** = North Ayrshire Council
- **DGC** = Dumfries and Galloway Council
- **EAC** = East Ayrshire Council
- **SAC** = South Ayrshire Council
- **SEA** = Scottish Enterprise Ayrshire
- **SEDG** = Scottish Enterprise Dumfries and Galloway

A full glossary of terms is presented in Annex 1
1 Introduction and Context

1.1 Background

Waste management in Scotland is facing a period of rapid and radical change. Driven by European legislation, the need for improved environmental protection and public expectation, we must find ways of reducing our current dependence on landfill and moving towards more sustainable methods of managing waste. We must also seek to reduce the growth in waste arisings, minimise resource use, reduce the hazardous content of waste and to find solutions that do not compromise the future, in line with sustainable development. This will require a fundamental change in our current attitude to waste and an acceptance that we will all have a responsibility to reduce waste and not simply to pass the responsibility to others.

The advent of the Landfill Directive, which deals with the re-classification of landfill sites, stricter control of how they are engineered and what is permitted to be placed in them, is the main driver for change. This will result in lessening the impact of waste generation by requiring more value recovery from waste through recycling, composting and, in the longer term, recovery of the energy from wastes.

Membership of the WSAG, at this stage, is principally in the public sector. This is due, mainly, to the local authorities responsibilities for producing individual Integrated Waste-management plans and their legislative requirements as dictated by the Landfill Directive.

As development of the plan evolves, through the inclusion of options for other waste streams, the membership may change, to reflect the needs of industry and commerce.

It is important that the final AWP adopts an integrated approach that:

➔ ensures that all waste streams are considered together and the solutions chosen for individual waste streams are considered in light of how they impact on the management of others

➔ considers waste minimisation, reuse, recycling, energy recovery, disposal, promotion and education and local market development in a coherent and planned way

➔ ensures consistency with adjoining areas and national integration of the plan within the National Waste Strategy: Scotland

➔ where there are proposals for the import/export of large volumes of waste from the Waste Strategy Area, these proposals are examined as to their compliance with the BPEO both for the receiving and exporting Waste Strategy Areas.

To date the focus of the AWP has been on the wastes that are currently handled by local authorities. This represents some 25% of all the wastes generated within the area (estimated from SWMBA). This waste has a high pollution potential due to its biodegradable content (estimated at 60% in line with EC Landfill directive guidance).

This focus must take into account the different, geographic, political and operational constraints the different authorities work with. In particular, the current contractual arrangements in place between local authorities and private contractors will influence the future waste-management arrangements. Many of these contracts operate on a fixed minimum tonnage to be collected and disposed. As these contracts become available for renegotiation WSAG members should recognise the objectives of the AWP in agreeing new waste-management contracts. Table 1.1 summarises the existing contractual arrangements between local authorities and private contractors.
Table 1.1 - Current MSW Contracts

<table>
<thead>
<tr>
<th>Council</th>
<th>End date of contract</th>
<th>Contractor</th>
<th>Type of Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Ayrshire</td>
<td>2003</td>
<td>Currently out to tender</td>
<td>Existing - disposal to Garlaff landfill site Proposed – see Annex 6</td>
</tr>
<tr>
<td>South Ayrshire</td>
<td>2013</td>
<td>Barr Environmental</td>
<td>Existing - disposal to Garlaff landfill site Proposed – see Annex 6</td>
</tr>
<tr>
<td>North Ayrshire</td>
<td>Not applicable, operate self-sufficiency policy</td>
<td>Collection and disposal in-house</td>
<td>All in-house See Annex 6</td>
</tr>
</tbody>
</table>

**Action 1**
Each local authority to ensure that as their waste contract approaches renewal, the chosen options conform to the requirements of the AWP.

It should be noted that other non-MSW waste streams have not been considered to the same degree of detail due to lack of available data. Other wastes are dealt with in Section 4 and include special waste, tyres, batteries, packaging waste and others. A number of these wastes will be the subjects of Priority Waste Stream Projects (See Section 4) and the findings of these will inform the future development of the plan.

It will be important to establish the composition and quantity of the other waste streams within the area. This will be the subject of ongoing work during the next phases of the AWP development and implementation in the Ayrshire, Dumfries and Galloway area. As with household waste, determining accurate waste data and growth rates for these other waste streams is vitally important.

**Action 2**
To more clearly define the quantities and nature of wastes other than MSW within the WSA, to enable the integration of facilities for treatment, where appropriate.

Top of the waste hierarchy is waste prevention and the need to change our means of production so as not to produce as much waste. All the authorities have recognised the importance of this and have implicitly included the need to develop waste-prevention strategies to support their application of the BPEO within their authority. Priority will need to be given to devising methodologies to assist in developing and rolling out such strategies for all wastes.

The Scottish Waste Awareness Group (SWAG) is currently undertaking research projects to determine public attitudes to the waste generated in the home. Part of this work has been undertaken in Dumfries and Galloway, where it is hoped the results will help inform the final shape of the Council's Waste Management/Recycling Public Finance Initiative Project.

Raising awareness of the importance of this issue, particularly in commerce and industry, will be an ongoing programme and is supported by SEPA’s national programme for the development of waste minimisation initiatives. Actions to stimulate participation in waste reduction and recycling are needed and will be sought.
Partnership Working

To date, the WSAG has formed the focus for the development of the AWP. This group is a partnership between the four unitary authorities, SEPA and relevant Scottish Enterprise companies. The role of the Scottish Enterprise companies has been limited by the focus on local authorities responsibilities for MSW. The principle drivers being the local authorities' statutory responsibility to deal with household waste, plus their need to comply with the EC Landfill Directive. Given these factors and the lack of good-quality data for industrial and commercial sources of waste, the work of the group has focused on MSW. It is essential that this group continues to meet in some form, so as to monitor and ensure the successful implementation of this first, MSW led phase of the plan. The importance of the participation of the Elected Members in the process cannot be overemphasised.

The actual format and role of the group in the next stages may vary, to account for the task being undertaken. This will be very much determined by how the next phases of the plan will be rolled out. In particular it must be recognised that, despite the laudable efforts of local authorities and the private waste industry, little can be achieved in isolation.

Action 3
The need to develop a suitable Waste Strategy Area Group (WSAG) structure to roll out waste minimisation strategies, primarily covering MSW and the local authorities' statutory duties to deal with its wastes.

The need for SEPA, through the area waste planning process, to develop suitable structures to roll out waste minimisation strategies, covering internal waste reduction and commercial, industrial waste minimisation

Action 4
To identify the next elements of the AWP and set up aims and objective led groups to specifically target their delivery.

1.2 AWP: Key Aims and Objectives

1.2.1 Key Aim
To contribute to the sustainable development of the Ayrshire, Dumfries and Galloway Waste Strategy Area by developing waste-management systems that will control waste generation, reduce the environmental impacts of waste production, improve resource efficiency, stimulate investment and maximise the economic opportunities arising from waste.

1.2.2 Objectives

➔ Set out in detail the existing waste-management infrastructure and arrangements, develop the principles and plan for progress in waste management in the medium and long terms to meet current and future legislative requirements and the objectives of the National Waste Strategy: Scotland.

➔ Ensure that the waste-management system developed is in accordance with the BPEO and accords with the principles of sustainable development and integrated waste management, and makes the maximum possible contribution to reducing society's environmental impact at an acceptable cost.

➔ Provide a clear framework for stakeholders to judge the future development of waste-management services in the Ayrshire, Dumfries and Galloway area, and to guide both local authority Integrated Waste-management Plans and private investment decisions.

➔ To contribute to the development of planning policy so that it is consistent with the overall aims of the National Waste Strategy and the Ayrshire, Dumfries and Galloway AWP.

➔ To explore the opportunities for Ayrshire, Dumfries and Galloway businesses arising from sustainable waste management, including the not-for-profit sector.

➔ To enable all key stakeholders the opportunity to input to the Area Waste Planning process.

➔ Ensure that the Area Waste Planning process offers a clear, transparent and informative approach to local stakeholders.

➔ To raise public awareness of the future challenges in implementing the AWP and promote active participation by all stakeholders in meeting the objectives.

➔ To maintain regular reviews of new waste-management technologies to ensure the continued BPEO for the Ayrshire, Dumfries and Galloway area in the longer term.
1.3 Developing an Integrated Plan

The AWP seeks to adopt an integrated approach that:

➔ ensures that all waste streams are considered together and the solutions chosen for individual waste streams are considered in light of how they impact on the management of others;

➔ considers waste minimisation, reuse, recycling, energy recovery, disposal, promotion and education and local market development in a coherent and planned way;

➔ ensures consistency with adjoining areas and nation integration of the plan within the National Waste Strategy: Scotland.

The Ayrshire, Dumfries and Galloway WSAG has primarily considered the management of municipal waste. At this stage it has not been possible to take the fully integrated approach as suggested in SEPA’s ‘Best Practicable Environmental Decision Making Guidance’, because of issues associated with data availability on the quantity, sources, and content of industrial and construction and demolition wastes. This will require ongoing consultation with the Ayrshire, Dumfries and Galloway waste industry to develop a fully integrated plan for non-MSW waste streams and a number of action points to take this forward are set out in this plan. It is recognised that there is a need for an integrated approach to collecting and managing data to meet the many demands for waste-management data. Data are required for European reporting requirements, policy planning, reviewing performance, assessing the impacts of new legislation, regulating effectively, aiding research and communicating with stakeholders.

As part of this process, regular annual surveys of MSW and waste-management licensed sites are being brought forward by SEPA. In addition, work is ongoing to improve the quality of data on special waste, priority waste streams and general industrial wastes. Significant improvement will need to be made to the quality of data on waste arisings if the shift to an effective resource management culture in Scotland is to be achieved.

When completed and integrated across Scotland, the 11 AWPs will require to collectively meet national legislative requirements. In order to achieve consistency of approach across the Waste Strategy Areas, a broad methodology and guidance was established through the following key documents: ‘Supporting Guidance For Area Waste Plans’ and ‘Best Practicable Environmental Option BPEO Decision Making Guidance’. An important element was to seek the involvement of all key stakeholders (waste industry, local authorities and the general public) at various stages of the process. Consistency between adjoining areas is also important.

The AWP establishes a broad approach to waste management in the Ayrshire, Dumfries and Galloway area. However, it must not be seen in isolation, but part of the wider drive of moving to environmental and community awareness and sustainability objectives. The AWP will therefore influence and, in turn, be influenced by a raft of other policy documents and initiatives and has a key role in integrating the investment programmes and other plans, strategies and initiatives developed by central and local government, partner agencies and the waste industry generally. A list of potential linked documents is outlined and summarised in Annex 3.

1.4 Area Description

The Waste Strategy Area is composed of four local authority areas. The area essentially covers the South West of Scotland and supports a population of 522,700 (at 1998). Table 1.2 shows the estimated population figures by administrative area for 1998 and population projections until 2020. Table 1.3 gives the estimated and projected households (by administrative area) for 51998 for the same period. It should be noted that both the population and household projections use General Records Office (Scotland) (GRO(S)) data projected to 2012 and 2016 respectively and extrapolated to 2020 for indicative purposes only. Given the original data is based on the 1991 Census there is a potential for a considerable margin of error in the plan period.
Table 1.2 - Projected Population to 2020 for the Four Administration Areas

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dumfries and Galloway</td>
<td>147,300</td>
<td>145,600</td>
<td>143,800</td>
<td>141,300</td>
<td>139,900</td>
<td>-5.0</td>
<td>-0.2</td>
</tr>
<tr>
<td>East Ayrshire</td>
<td>121,300</td>
<td>117,100</td>
<td>113,700</td>
<td>109,300</td>
<td>106,700</td>
<td>-12.0</td>
<td>-0.5</td>
</tr>
<tr>
<td>North Ayrshire</td>
<td>139,600</td>
<td>139,700</td>
<td>139,600</td>
<td>139,200</td>
<td>139,100</td>
<td>-0.4</td>
<td>-0.0</td>
</tr>
<tr>
<td>South Ayrshire</td>
<td>114,400</td>
<td>114,600</td>
<td>115,200</td>
<td>116,100</td>
<td>116,500</td>
<td>1.8</td>
<td>0.1</td>
</tr>
<tr>
<td>Totals for WSA 9</td>
<td>522,700</td>
<td>517,000</td>
<td>512,300</td>
<td>506,000</td>
<td>502,200</td>
<td>-3.9</td>
<td>-0.2</td>
</tr>
</tbody>
</table>

Note: No national projections beyond 2016. 2020 figure extrapolated using 1998-2016 trends. Percentage change per annum calculated over total period range: Mid 1998 – Mid 2020 = 18 years. All figures rounded to nearest hundred. Percentage change shown rounded to one decimal place. See SWMBA (2001) reference data sheets Appendixes 2 and 3 for full details of calculations.

With the exception of South Ayrshire, the estimated populations served by the authorities within the area are in decline. East Ayrshire’s current rate of reduction is the most extreme. When this percentage change is projected forward, it affects both the calculated annual percentage change for the local authority and the whole area. This has a knock on effect on the projected tonnages of waste arising (see SWMBA Appendices 2 and 3). The declining population figures also mask a changing demographic profile (changing age structure, projected rise in single person households, etc.). These changes are, for example, likely to give rise to a substantial rise in household formation despite the projected population lost. As a consequence the changing demographic context could have an effect on waste production, though without further research this is not possible to quantify. Current evidence, however, suggests a reduction in household waste arisings is achievable over the period of the plan.

Table 1.3 - Projected Households to 2020 for the Four Administration Areas

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dumfries and Galloway</td>
<td>63,000</td>
<td>65,700</td>
<td>67,300</td>
<td>67,900</td>
<td>69,000</td>
<td>71,000</td>
<td>+12.7</td>
</tr>
<tr>
<td>East Ayrshire</td>
<td>50,700</td>
<td>51,800</td>
<td>52,700</td>
<td>52,800</td>
<td>53,000</td>
<td>54,000</td>
<td>+6.5</td>
</tr>
<tr>
<td>North Ayrshire</td>
<td>58,500</td>
<td>62,400</td>
<td>65,300</td>
<td>66,400</td>
<td>69,000</td>
<td>71,000</td>
<td>+21.4</td>
</tr>
<tr>
<td>South Ayrshire</td>
<td>48,200</td>
<td>50,600</td>
<td>52,400</td>
<td>53,200</td>
<td>55,000</td>
<td>56,000</td>
<td>+16.2</td>
</tr>
<tr>
<td>Totals for Areas</td>
<td>220,400</td>
<td>230,500</td>
<td>237,700</td>
<td>240,300</td>
<td>246,000</td>
<td>252,000</td>
<td>+14.3</td>
</tr>
</tbody>
</table>

Source: Household Projections Scotland (1998 Based) published 2000
Note: There are no national projections beyond 2012. The figures of 2016 and 2020 have been extrapolated using 1998-2012 trends to the nearest thousand.

Estimates can be made for the projected tonnage of household waste if is assumed that it equals MSW and that waste production is directly proportional to population change (see Table 1.4 over).
It should be noted that these figures in the above tables are for indicative purposes only. The full range of mechanisms influencing waste growth are not completely understood. Further work is required on how these changes translate into impacts on total waste arisings for the area.

**Industrial Waste (other than construction and demolition)**

It is estimated that, in 1998, some 138,000 tonnes of industrial waste was generated in the area (see Figures 1.1 and 1.2: summarising arisings and disposals). This excludes sewage sludge and construction and demolition. Approximately two-thirds of this waste; 96,000 tonnes, was landfilled within the area. Of the remaining third, roughly 58,000 tonnes, was exported for recycling. A relatively small amount, approximately 8,000 tonnes, was imported for recycling which led to a total of 14,000 tonnes being recycled in the area.

These estimates are based upon figures provided by the councils and private contractors, and collected by Enviros Aspinwall. Although the figures balance in this section, there is not enough reliable data currently available to estimate growth rates for the industrial wastes in the area.

**Sewage Sludge**

It is estimated that in 1998, some 400,000 tonnes (wet weight) of sewage were produced in the area. These figures are based upon estimates provided by the councils, private contractors and the former West of Scotland Water. It is recognised that these figures may be inaccurate, due to variations in private figures supplied. However, 400,000 tonnes is likely to be the maximum tonnage of sewage sludge arising.

Arisings of sewage sludge are likely to change in the near future. Projected change is less likely to be affected by the population changes than requirements of the Urban Waste Water Directive. This will require much higher discharge standards, which could lead to an increase in sludge production from those treatment works discharging to water. Additional treatment facilities are planned which will further process the sludge.

**Construction and Demolition Waste**

It is estimated that in 1998, 400,000 tonnes of construction and demolition waste was collected in the area. Most of this waste was landfilled in the area. Approximately 172,000 tonnes was collected for recycling purposes. Allowing for the balance of imported and exported waste, there are 172,000 tonnes entering the system that have not been accounted for, unless the data have not included the recycling data in the arisings total. This serves to highlight the problems encountered in gaining reliable quality waste data, and why the group has focused on MSW.

**Special Waste**

Only very poor quality data are available on the arisings of special waste in the area, although there are a number of sites licensed to accept special waste (predominately bonded asbestos). It is estimated 8,000 tonnes arose in the area, of which 4,500 tonnes were exported and 3,500 tonnes disposed of internally. From 1997 to 1999 the local SEPA offices issued a small number of special waste notes. The majority of these notes were issued in relation to the disposal of small quantities of asbestos from construction and demolition works.

The main producers of clinical waste in the area are the Ayrshire and Arran Health Board and the Dumfries and Galloway Health Board. During 1998, this material was transported within the area to the Crosshouse incinerator, at Kilmarnock.
Agricultural Waste

As agricultural waste is not a controlled waste, there is no obligation on farmers to record the quantity of waste that they produce. As a result, there are no accurate figures available on the tonnage of waste generated. The waste minimisation initiative underway in the area should give an indication of waste arisings from selected farms, which could be used to gain an estimate of the total agricultural waste arisings for the area.

Summary of Waste Arisings and Disposals

The figures below give an indication of the waste arisings and movements of waste in the area.

Figure 1.1 – Waste Arisings in Ayrshire, Dumfries and Galloway

Figure 1.2 – Waste Disposals in Ayrshire, Dumfries and Galloway
Regional waste management across the area has to be taken into account in seeking an integrated approach. Details for the four authorities are below:

**Dumfries and Galloway**

The local authority has seven licensed landfill sites of which three are operational in terms of accepting MSW (the other four are licensed and are in post closure and restoration stage, taking inert waste only by appointment.) This gives a theoretical handling capacity of 200,000 tonnes per annum but only up to 150,000 tonnes per annum is currently being used. It is the council’s intention to close and restore the main site in the east of the authority area (Locharmoss) as soon as practicably possible. Aucheninnes, near Dalbeattie, will require re-engineering to meet containment requirements of the licence should it be extended to become the authority’s main site. The third active site at Galdenoch, Leswalt, Stranraer is in the west of the authority area. It is a relatively small site and accepts waste from Wigtown area. This site will also require re-engineering should it be extended.

There are 19 sites currently on the register. The majority of them are either closed or closing, or only offer a small-scale part-time facility for inert waste. Effectively, Phase II of Auchenlosh, with an annual licence capacity of 25,000 tonnes per annum, is the only commercially operating site in these parts.

On the recovery side there are eight licensed facilities. Seven of these are scrap metal recyclers and one, R Frazier’s of Dumfries (now MIREC), operates a major recovery and recycling operation for computer equipment and telephones.

There are three accredited reprocessors (in terms of the Producer Responsibility Obligations for Packaging Waste) namely, Armstrongs Waste Management with accreditations for wood and for paper, Dumfries Plastics Limited and Plastic Technology Services Limited (dealing with plastics).

**East Ayrshire**

The local authority does not operate any sites. There are currently six facilities, three of them are small part-time operations. The other three provide the major part of the area’s capacity for dealing with active waste. Together they provide a waste handling capability of approximately 2,500 tonnes per day and disposal capacity of about 50,000m³ per annum in the local authority area.

The council is in the last year of a contract with a private contractor for the transfer loading and disposal of its municipal waste. All waste is disposed of in Garlaff Landfill. The council has invited tenders for a new waste transfer/treatment and disposal contract for a 15-year period commencing in 2003. The successful bidder will be required to demonstrate that the proposals are consistent with the finalised version of the AWP and in turn allow the council to meet its statutory obligations in respect of the EU Landfill Directive.

It should be noted that Craignaught Landfill Site operates a significant composting process and that Garlaff Landfill Site is commissioning a landfill gas energy recovery plant.

The clinical waste incinerator at Crosshouse, which used to take all the Health Board waste for the area, does not meet requirements to burn special waste. It has subsequently been decommissioned.

The only licensed recovery facilities are two metal and scrap metal dealers.

**North Ayrshire**

North Ayrshire has a tradition of self-sufficiency in their waste-management arrangements. Currently, waste disposal is carried out at a landfill site at Brodick, serving the Isle of Arran and landfill site at Shewalton, Irvine serving the mainland and the Island of Cumbrae. As detailed in the SWMBA 2001, the landfill site at Shewalton is intended to operate until August 2005. Thereafter, it is proposed to make use of another area of Shewalton for which planning permission is already in place that should facilitate another 8 to 10 years of landfill (allowing EC landfill diversion requirements). This latter site will be a fully contained site and will require to be the subject of an Integrated Pollution Prevention and Control Application to SEPA. Consultants have already been tasked with obtaining the necessary information to facilitate such an operation. North Ayrshire Council has recently gained planning permission for a major site at Bogside near Irvine, which would meet the long-term disposal needs for mainly inert waste.

There are five private licensed facilities with a total licensed waste handling capacity of 104,000 tonnes per annum within the local authority area (which equates to a cubic capacity of almost three million cubic metres).
There are no licensed recovery facilities operating in the area. It should be noted that there is one accredited reprocessor, (in terms of the Producer Responsibility Packaging Waste Regulations) namely Rockware Glass.

North Ayrshire also has a new clinical waste incineration facility. This facility, operated by Hamilton Clinical Waste Limited, has an operational capacity of 25 tonnes per day. This equates to a capability of approximately 9,000 tonnes of clinical waste per year. At Meadowhead, near Irvine, there is a proposed sludge drying pyrolysis and gasification plant with a proposed daily throughput of 1,000 tonnes of sludge per day (giving it an annual handling capacity of some 360,000 tonnes per annum). In addition, this facility proposes to take sludge from Stevenston and Inverclyde Waste Water Treatment Works.

**South Ayrshire**

The local authority does not operate any landfill sites of its own, although it does operate one licensed waste transfer station and six licensed civic amenity sites within its area. South Ayrshire Council disposes of the majority of its municipal wastes at Garlaff Landfill Site near Cumnock, through a 15-year contract agreement with Barr Environmental of Heathfield, Ayr. Wastes arising in the south of the district are currently disposed of at Straid Landfill Site, and Tarbolton landfill site is also used for some limited disposal.

The council’s civic amenity sites are provided with separate skips and containers for the deposit of garden waste, wood, metals, glass, paper, cardboard, textiles, oil, etc., which are all passed on for recycling. In addition, the council provides a number of glass and can recycling banks strategically located throughout the district. The council has also introduced an extensive waste-minimisation project involving the distribution and promotion of home-composting bins to householders within the district.

There are currently two private licensed landfill sites within South Ayrshire, at Tarbolton Moss and at Straid Landfill Site, Lendalfoot. There is one licensed metal recovery facility at Ayr Harbour and one licensed waste transfer station at Saltpans Road in Ayr.

**Civic Amenity and Recycling Facilities**

All the local authorities are committed to providing a civic amenity network to serve the needs of their individual communities. Likewise, all of the authorities are committed to innovating and trialing different recovery/recycling and composting operations.

**Waste Collection Systems**

All the local authorities operate a mixed household and commercial waste collection service and have standardised their collection systems on ‘wheeled’ bins (garden refuse collection, special lifts, etc., have not been standardised). This traditionally provides the most effective means of quickly and safely gathering large quantities of waste without the labour-intensive requirements of sack or manual bin systems. A few such systems are retained in special localised circumstances.

Full details of the methods and costs of operating these services are best found in the Audit Commission’s Report on value for money in local authority waste collection system services, entitled ‘Benchmarking Refuse Collection’ published in April 2000.

The costs shown in Table 1.5 below are taken from that report. They include an element of commercial collection undertaken by the local authorities, but still give an insight to the extremely cost-effective nature of their current operations.

**Table 1.5 – Annual Gross Cost of Mainstream Refuse Collection per Property Served**

<table>
<thead>
<tr>
<th>Local authority</th>
<th>Gross Cost Per Property Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dumfries and Galloway Council</td>
<td>£37 p.a.</td>
</tr>
<tr>
<td>East Ayrshire Council</td>
<td>£37 p.a.</td>
</tr>
<tr>
<td>South Ayrshire Council</td>
<td>£34 p.a.</td>
</tr>
</tbody>
</table>

Source: Audit Commission Benchmarking Refuse Collection April 2000
Waste Movements

Of approximately one million tonnes of waste arisings within the area, the vast majority, some 863,000 tonnes, are disposed of within the area. Only a relatively small amount is exported outwith the areas and that tends to be for recycling. Consequently, the exports accounted for are directed to the central belt. The figures disguise the fact that a certain amount of waste does move around within the area boundaries, particularly given the interplay of contracts and disposal facilities in Ayrshire. It is also worth noting that the movement of waste is exclusively by road.

Slightly more than half of the special wastes that we can account for, being produced in the area are exported to licensed facilities outwith the area. Scotland produces over 200,000 tonnes of special waste, and more than half of this is known to be transported to England for treatment, recovery or disposal but we have no specific data relating to this. Given the major transit corridor of the M74 and M6 one would expect to see the bulk of the transported waste going to England, transiting through the area.

Existing Infrastructure

Table 1.6 below summarises the numbers and types of waste-management facilities within Ayrshire, Dumfries and Galloway that have current waste-management licenses.

**Table 1.6 - Current Licensed Waste-management Infrastructure**

<table>
<thead>
<tr>
<th></th>
<th>DGC</th>
<th>EAC</th>
<th>NAC</th>
<th>SAC</th>
<th>WSAG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landfill sites</td>
<td>12</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Transfer stations</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>C/A and/or recycling</td>
<td>10</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>23</td>
</tr>
<tr>
<td>Licensed recovery facilities</td>
<td>8</td>
<td>2</td>
<td>9</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>Accredited reprocessors</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Licensed treatment facilities</td>
<td>*1</td>
<td>*1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

Source: to SWMBA Appendix 1 table 7 Waste-management Facilities (1998)

(*Clinical Waste Incineration Facilities)

Note: shows both Public and Private, facilities.

Additions to the current infrastructure will be required in order to cope with increasing volumes of waste and the shift in the management of waste up the waste hierarchy. Chapters 3 and 4 deal in detail with MSW and non-MSW wastes respectively and will set out the future infrastructure needs of these waste streams where possible. Where this is not possible, a process will be established to identify future infrastructure needs.

Non-Municipal Solid Waste

At present, there is limited quantitative data on commercial, industrial, construction and demolition wastes currently arising within ADG. Management of these wastes are primarily dealt with by the private sector. Significant quantities of these wastes are landfilled, however, increasing quantities are being recovered and, SEPA is leading work to establish a better information base and methodology to develop a strategy for managing non-MSW streams.
1.6 Summary of Consultation Results

The consultation process undertaken within the Waste Strategy Area led to the highest response of any of the areas in Scotland. The consultation was undertaken in three parts, namely:

A Full Strategy Document entitled ‘Shaping the Future of Waste Management in Ayrshire, Dumfries and Galloway’. This paper detailed the development of waste-management options for MSW in the area and contained the full text of the Draft Plan.

The second element was entitled ‘Ayrshire, Dumfries and Galloway Draft Area Waste Plan Summary’. This paper summarised the main document, laid out the action plan identified by the WSAG and set a detailed questionnaire consulting on aspects of the Plan’s development and general attitudes towards waste management in the proposed plan (this questionnaire is hereafter referred to as the ‘long summary questionnaire’).

The third element was a very short document entitled ‘Draft AWP Information Booklet’. This summarised the implications of the proposed plan for each of the four council areas using non-technical terminology. It further included the action plan. With this document was a short two-page questionnaire called ‘Do a Little – Change a Lot’ (hereafter referred to as the ‘short questionnaire’) and this was used to assess public views on waste management or on aspects of the proposed plan.

1,136 responses to the short questionnaire and 80 responses to the long questionnaire received. The response across the Waste Strategy Area was assessed at between 5 and 16% for the long questionnaire and between 12 and 26% for the short version. The average responses to the questionnaires were:

<table>
<thead>
<tr>
<th>Long questionnaire 16%</th>
<th>Short questionnaire 28%</th>
</tr>
</thead>
</table>

(This is calculated in relation to the number of questionnaires sent out)

Response is therefore regarded as being exceptionally high for this type of mailshot consultation. Further, given that a random sample from each of the authorities was chosen, we have a high level of confidence that the results are representative.

Key points to take out of the consultation are:

➔ The level of response was very high
➔ It is regarded as representative
➔ The responses themselves were very positive.

The results supported the BPEO proposal. They regarded this as practical and, although it was felt by several of the respondents that the variation was great enough to represent more than one BPEO, this disparity was generally considered to be reasonable since it allowed the authorities to take account of local situations and problems. It was emphasised, however, that this should not be used by the individual councils as a way of avoiding their obligations under the AWP.

The actual plan was likewise considered to be satisfactory. However, it was felt that a number of additional important points should be highlighted in the action plan, namely:

Waste minimisation

➔ options for hazardous waste
➔ legislation to reinforce the plan
➔ public education
➔ action on packaging waste.

Conclusions of consultation process

➔ recognition that change to the way MSW is dealt with is long overdue
➔ a desire to take part in schemes to deal with waste, in particular recycling actions and means of minimising waste
➔ overall support for the preferred option, i.e. maximum flexible option. Respondents generally liked the flexible integrated approach of this option and its ability to meet the targets presented in the Landfill Directive (See Annex 4 Associated Reports)

The consultations outcomes (Table 1.7) outlines the areas of concern raised by the consultation process and how the AWP seeks to address them.
## Table 1.7 - Consultation Outcomes

<table>
<thead>
<tr>
<th>Key points of concern</th>
<th>How these will be addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of timetable for completion of the work</td>
<td>The complexity of undertaking what is a pioneering approach to waste management has affected the timescale for developing the plan.</td>
</tr>
<tr>
<td>The production of different solutions for each council area may be contrary to the partnership process (this is a risk identified by SEPA and the Scottish Executive). This gave rise to concern that, due to the different council options, not all the facilities described in the BPEO will be made available in each area.</td>
<td>This is a specific feature that the local authorities wished included in the BPEO. The key driving force behind this appears to be a desire not to be forced into a one size fits all type of solution. The local authorities are preparing a Joint Strategic Waste Fund bid to support the collection needs of the BPEO. It should be noted that the flexibility of the BPEO as well as economies of scale gained from different technologies mean that not all the facilities described will be needed in each area.</td>
</tr>
<tr>
<td>Lower levels of recycling than many respondents would have expected.</td>
<td>The final AWP has moved to set out the recycling levels more clearly. These are higher than were indicated in the Draft Consultation. As such this may alleviate some of the concerns raised.</td>
</tr>
<tr>
<td>Problems with access to recycling facilities.</td>
<td>There is a major shift towards the introduction of kerbside collection systems with all the authorities setting targets for the percentage of households to be provided with such services (this is the subject of the Joint Strategic Waste Fund bid referred).</td>
</tr>
<tr>
<td>Lack of detail in documentation</td>
<td>This was primarily caused by the pressures of the key issues identified above. The local authorities – with the exception of Dumfries and Galloway – specifically sought to keep the information as open as possible whilst they sought to overcome those problems. The Final Waste Plan is much more detailed. It does give specific targets as well as identifying potential additional plant and capacity.</td>
</tr>
<tr>
<td>Key points of concern</td>
<td>How these will be addressed</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Increased use of Education Awareness Schemes.</td>
<td>Nothing is specifically spelt out in the AWP though this need is implicitly recognised in the action plan.</td>
</tr>
<tr>
<td>Incentives to participate</td>
<td>A number of the action plans specifically set out the need to identify and involve appropriate stakeholders in different activities. The need to use incentives was not stated, though this would be implicit in any appraisal of such schemes.</td>
</tr>
<tr>
<td>Promotion of waste minimisation</td>
<td>Nothing specific was spelt out in the consultation document other than the fact that all local authorities were committed to incorporating Waste Minimisation. The Action Plan does identify the need to develop waste minimisation strategies and these could be taken forward in future integrated waste-management plans.</td>
</tr>
<tr>
<td>More action on packaging waste</td>
<td>This was not specifically identified though is clearly implicit in the action requirements to increase recycling and reuse, etc.</td>
</tr>
<tr>
<td>Public education</td>
<td>Again this was not specifically set out in the consultation although all local authorities gave a commitment to promoting educational issues. The action plan does cover the educational and promotional aspects of future activities.</td>
</tr>
</tbody>
</table>

The respondents also indicated that the following additional points should also be included within the plan:
2 Strategic Framework and Drivers for Change

2.1 Introduction

The purpose of this section is to summarise a number of key drivers and influences which set the context for the AWP and which will impact on the future waste planning and management in Ayrshire, Dumfries and Galloway. Figure 2.1 (below) summarises the most significant partner organisations, drivers and mechanisms for change. The most significant drivers are then described in more detail and Annex 3 provides more detail on the key mechanisms.

Figure 2.1 - Key Drivers, Organisation and Mechanisms

<table>
<thead>
<tr>
<th>DRIVERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scottish Executive Legislation, Guidance, Finance.</td>
</tr>
<tr>
<td>European Union Directives</td>
</tr>
<tr>
<td>SEPA National Waste Strategy; Scotland and Regulatory Policy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PARTNER ORGANISATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Authorities: Scottish Enterprise</td>
</tr>
<tr>
<td>Not-for-Profit Sector (as NFP Stakeholder)</td>
</tr>
<tr>
<td>Private Waste Management Sector: (as Business &amp; Industry Stakeholder)</td>
</tr>
<tr>
<td>Local Entrepreneurs (as Business &amp; Industry Stakeholder)</td>
</tr>
<tr>
<td>Community Councils &amp; other community groups (as Not-for-Profit Stakeholder)</td>
</tr>
<tr>
<td>NGO’s e.g. Friends of the Earth (as Not-for-Profit Stakeholder)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MECHANISMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment/Development Plans by Waste Industry</td>
</tr>
<tr>
<td>Education and Awareness and Cultural Change</td>
</tr>
<tr>
<td>Development Planning: Structure and Local Plans</td>
</tr>
<tr>
<td>Economic Development Strategies</td>
</tr>
<tr>
<td>Local Transport Strategies</td>
</tr>
<tr>
<td>Environmental Strategy, Integrated Waste Management Plan, LA 21 Strategies</td>
</tr>
<tr>
<td>Strategic Community Plan</td>
</tr>
</tbody>
</table>
2.2 Definition of Waste

Definition of waste given in Council Directive 75/442/EEC (Waste Framework Directive) as amended by Council Directive 91/156/EEC is any substance or object in the categories set out in Annex 1 of the directive which the holder discards or intends or is required to discard. The Directive excludes from its scope gaseous effluents emitted into the atmosphere and, where they are already covered by other legislation radioactive waste; waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries; animal carcasses and the following agricultural wastes: faecal matter and other natural non-dangerous substances used in farming; waste waters with the exception of waste in liquid form; and decommissioned explosives.

2.3 Sustainable Waste Management

It is Scottish Executive policy to move towards more sustainable waste-management systems with increased recycling and composting (25% of MSW by 2006) and less reliance on landfill disposal. The Strategic Waste Fund has been established to assist local authorities with the additional costs of implementing the National Waste Strategy Scotland.

2.4 The EU Landfill Directive

The EU Landfill Directive is one of the key drivers behind the National Waste Strategy: Scotland. The Directive imposes environmental and engineering standards for landfills across Europe and will ban the landfilling of many substances that are disposed of in this way at present. The Directive also requires a progressive reduction in the landfilling of BMW and the pre-treatment of wastes before landfilling, to both reduce waste volume and minimise the environmental impact of disposal. This will assist in the reduction of landfill gases, such as methane, which are significant contributors to global warming.

2.4.1 Diversion BMW

The Directive establishes national targets and timescales for the reduction of BMW to landfill. Where member states are particularly dependent on landfill they will be allowed to defer the implementation of the target dates by up to 4 years. It is expected that the UK will take advantage of this derogation. The UK has to report to the European Commission by July 2003 giving details of how the targets will be met and a decision on whether to extend the target dates will be taken then.

From a baseline of 1995, the amount of BMW allowed to landfill will be (assuming the 4-year delay is used) as follows:

- 75% of 1995 levels by 2010
- 50% of 1995 levels by 2013
- 35% of 1995 levels by 2020

In developing this AWP the assumption has been made, in consultation with the Scottish Executive, that the 4-year delay will be taken.

What will this mean to the WSA?

Current evidence points to 2% growth rate in household waste arisings. This implies a 12,000 tonnes per annum reduction, averaged over the 20-year period of the plan, as being required to meet the 2020 Landfill Directive target for the area as a whole. This would further seem to indicate the interplay of a number of influencing factors in determining waste growth rather than any single determining factor, such as the projections are based on. The EU landfill Directive will be translated into UK legislation during 2000/2001. This will be the single most influential driver to bring about significant changes to our current waste-management regime. The derivation of the figures detailed below is based on the assumptions that 60% of MSW is biodegradable and that the 4-year derogation is taken up by Scotland. The ADG WSAO has consistently adopted a minimum and maximum range approach, to compensate for variations in the quality of waste data. The minimum range is expressed as 0% in waste growth, coupled to population change applied to the 1995 figure. The MSW growth rate to 2020 is unknown, however, past trends suggest 2% growth. Consequently, a 2% innate growth is used to identify the possible maximum range (SWMBA 2001). The diversion required and the breakdown of municipal waste is detailed in Table 2.1, however the intention is to reach these targets earlier wherever possible.
Table 2.1 - Projected BMW Diversion Requirements

<table>
<thead>
<tr>
<th>Maximum projection at 2% innate waste growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Year</td>
</tr>
<tr>
<td>Total MSW</td>
</tr>
<tr>
<td>Total BMW</td>
</tr>
<tr>
<td>BMW(^1) Diversion</td>
</tr>
<tr>
<td>BMW Landfilled</td>
</tr>
</tbody>
</table>

Source: Data from SWMBA 2001 Appendix 2 (rounded to nearest thousand tonnes)
BMW assumed to be 60% MSW

2.4.2 Landfill Permits

A key mechanism in controlling the amount of BMW each local authority will be allowed to landfill in future will be a system of Landfill Permits. The Scottish Executive will decide if local authorities will be able to trade their allowances, this would allow local authorities in areas where the additional costs of BMW diversion from landfill are disproportionately high, or where landfilling is the agreed BPEO to ‘buy permits’ from other local authorities which are exceeding their individual BMW landfill diversion target. It is the responsibility of each local authority in the WSAG to determine how to use the permits allocated to them by the Scottish Executive. Until the working detail of the ‘tradable permit system’ is known and the 1995 baseline figures allocated to each local authority, the impact on the WSA cannot be determined.

2.4.3 Other Technical Requirements

The Landfill Directive also has a number of other requirements, which will have an impact on the ability of landfill sites to accept certain waste types, the cost of landfill and could potentially shorten the life of some sites. Until a full assessment of the ADG landfill sites against the Landfill Directive criteria has been made, the full impact of the Directive will not be fully understood. The main requirements of the Directive are as follows:

➔ Classification of sites to certain standards or acceptance of certain waste types. This could result in no landfill site in the WSA being able to accept hazardous wastes.
➔ Specific wastes banned from landfill, including liquids and tyres.
➔ Increased technical and engineering standards.
➔ Waste requires to be treated prior to acceptance into landfill in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.

2.5 Landfill Tax

Fiscal measures, operating at a UK and European level, play an increasingly important role in influencing the way in which waste is managed and cannot be influenced at an areas waste strategy level.

Landfill Tax was introduced in 1996 to minimise the amount of waste generated and to develop more sustainable waste-management techniques by making landfill a less economically attractive option.

The implementation of Landfill Tax has considerably reduced the quantities of inert waste being disposed of to landfill sites. Much of this inert waste (such as soils, concrete, stone) is now being recovered and reused. As landfill tax for active wastes (as defined by HM Customs and Excise) increases, this will encourage consideration of recovery and reuse as waste-management options and support the movement of waste up the waste hierarchy.

The current landfill tax escalator, introduced in 1999, commits the government to raise the standard rate of tax for active waste by £1 per tonne each year until 2004/5, by which time it will have reached a rate of £15 per tonne. There is a strong case for increasing the tax significantly in future years to provide incentives for diversion of waste from landfill towards recovery treatments. The UK government announced in the November 2002 pre-budget statement their intention to consult on a revenue neutral proposal to increase the tax escalator to £3 per tonne from 2005/6 on the way to a medium to long-term rate of £35 per tonne.
As an integral part of landfill taxation a landfill tax credit scheme (LTCS) has been returning some of the revenue from landfill tax to the community to improve environmental quality and local participation in waste projects.

The government has announced a reform the LTCS from 1 April 2003. The level of funding for the replacement schemes will be capped at the value of the tax which would have been forgone in 2002/3 if all the available tax credits had been claimed by landfill operators. Approximately one-third of the funding will continue to be made available through a reformed tax credit scheme for spending on local community environmental projects, ensuring that the current level of support for these types of projects is maintained. The remainder will be allocated to public spending to encourage sustainable waste management.

### 2.6 National Waste Strategy: Scotland Principles

The National Waste Strategy: Scotland establishes key principles, which need to be taken into account in establishing a sustainable future for waste management. A number of these have influenced the development of the ADG AWP. These are:

- The waste hierarchy
- The proximity principle and self-sufficiency
- BPEO.

How these principles will affect the development of waste-management systems and the methods in ADG is described below.

#### 2.6.1 The Waste Hierarchy

The waste hierarchy provides a theoretical framework within which the most desirable waste-management options are set out (see Figure 2.2). Within ADG, in common with the majority of Scotland, existing waste-management practices are towards the bottom of the hierarchy. The objective of sustainable waste management is firstly, to minimise the amount of waste being produced at source and thereafter increase the percentage of waste that can be reused, recycled and recovered. Ultimately, the percentage of waste being disposed of to landfill should continue to reduce.

**Figure 2.2 - The Waste Hierarchy**
What this means for the area is described below.

**Waste Prevention**

The need to prevent and reduce the amount of waste being produced has never been stronger therefore this forms a fundamental element of the National Waste Strategy: Scotland. Waste-prevention tools include pre-product design, changes to management and production processes and the development of clean or wasteless technologies.

Waste-prevention initiatives must address two distinct waste streams:
- household waste
- commercial and industrial waste.

The main impacts to be gained through waste prevention, in the MSW stream, are through addressing packaging waste. Individual awareness of the environmental and economic impacts of excessive packaging needs to be raised. Suitable purchasing by individuals can help; excessive packaging should be reported to the Trading Standards Office of the local authority, who have a responsibility to pursue this matter.

Whilst home composting is not, strictly speaking, waste prevention, it does reduce the amount of biodegradable material from entering the collection system. As the biodegradable fraction of household waste is in the order of 60%, there is clearly considerable benefit to be derived from dealing with this fraction of the waste at source.

The National Waste Strategy Scotland sets a target for the reduction of municipal waste arisings by 1% per annum. At 1998 levels, assuming a zero rate of waste growth, this would equate to a decrease approximately 3,000 tonnes per annum. This would not be offset by the declining population figures (averaging 0.17% per annum across the area over the period mid 1998–mid 2020). Further, as pointed out, if the change in waste production is more strongly influenced by the number of households, than by population changes, the anticipated rise in household numbers (averaging 14% across the area for the period of the plan) could amplify the required tonnage reduction proportionately.

A number of specific programmes relating to the prevention/reduction of the amount of waste being produced at source have been instigated across the WSA. Details of these are covered in Section 4 under non-MSW.

**Reuse and Refurbishment**

Traditional reuse and refurbishment activity has declined in recent years as the cost of replacing consumer durables has fallen in relation to the cost of repair. However, as well as removing items from the waste stream, reuse and refurbishment are linked to job creation and economic improvement and there remain opportunities for stimulating activity at a local level.

Reuse and refurbishment can operate at a variety of scales, from local jumble sales and car boot sales up to national organisations such as Oxfam charity shops. There are many initiatives within the Waste Strategy Area for the reuse of household goods. However, these could be developed and co-ordinated to enhance their effectiveness.

As well as waste-management industry players, local community recyclers have an important role in developing reuse and refurbishment projects. The Recycling Advisory Group Scotland (RAGS), in acknowledging the importance of the community recycling sector, is working to establish a community recycling network in Scotland. This network will offer support and practical advice to community recyclers spreading best practice and experience.
Recycling and Composting

Recycling is the separation of a material for processing followed by preparation and sale onto a market to replace an existing virgin material. As such there are often numerous environmental benefits, such as reduced air emissions, reduced impacts of extraction, energy savings lower disposal impacts and more efficient use of raw materials. There are often other benefits such as encouraging producers to take responsibility for their wastes and economic benefits such as improved competitiveness or greater employment opportunities.

Composting is the aerobic decomposition of organic material to produce a stable material containing organic matter and plant nutrients. There are often benefits in applying this material to land, including nutrient addition, improved soil structure and improved water retention.

At this stage only a generic BPEO has been proposed. Until such time as each of the local authorities identifies how it intends to implement that BPEO, we can only repeat the generic observations made in Section 3, namely; that composting and recycling led options will only deliver the later diversion targets under the most favourable circumstances of low waste growth and maximum participation and materials yielded. As stated previously, the model assumes the availability of markets for the materials and that the materials will be taken up by that market. This ignores possible quality issues regarding the suitability of the materials recovered for recycling and or composting (as well as the current changing legislative and environmental enforcement regime for these materials). More importantly, it ignores Scotland’s lack of a recycling infrastructure. A key strand of the Nation Waste Strategy Scotland is to develop both the infrastructure and sustainable markets for recyclates. A strategy that pursues the early delivery of these materials without a mechanism linking their delivery to the development of the markets runs the risk of creating a glut of materials and possibly destabilising the emerging markets and facilities.

Other Recovery

Other recovery involves recovering part of the energy value from waste, for example by burning or thermally treating the waste directly (e.g. incineration) or by burning a fuel produced by the waste (e.g. refuse-derived fuel or landfill gas). The energy conversion efficiency of the plant will depend on the specific design, e.g. recovery of energy through combined heat and power (CHP).

For historic reasons, mass burn incineration plants have a poor reputation in the UK. They also tend to need expensive pollution control equipment to meet modern air emission standards and, if large-scale plants are built as the only or main technology for waste treatment, may result in a mixed waste treatment system that lacks flexibility to include other types of waste recovery.

The future of energy from waste may lie with emerging technologies such as pyrolysis or gasification. These have been proven in a range of applications such as coal gasification, tyre processing or biofuels, but are not proven in the UK for the treatment of a mixed household and commercial waste stream. Such technologies may also require careful waste pre-treatment.

In terms of what may be subject to such processes, consideration must be given to the nature of the materials going to the process. Some fractions of the waste stream are non-renewable resources, for example, plastics and, arguably, some paper waste. Long term we will need to be able to reuse or recycle these. Aluminium and ferrous waste will not enhance the thermal performance of a plant and should be recovered prior to processing. Whilst a limit has not been set on tonnage of waste that can be thermally treated, adherence to a recycling and composting emphasis leading to 2010 will be a limiting factor on the quantities available to thermal treatment processes.

It is envisaged that, long term, thermal treatment for recovering the energy value of the waste will be for that fraction of the waste that is renewable.

SEPA consulted on their ‘Guidelines and approach to thermal treatment plants and energy from waste’ in the summer of 2002, and these guidelines will be reviewed in light of the consultation before final launch.
Waste Collection and Disposal

The disposal and operational details for each of the local authorities have been covered in Section 1. All the local authorities operate a mixed household and commercial waste collection service. All the authorities have standardised their collection systems on ‘wheeled bins’ (garden refuse collection, special lifts, etc., have not been standardised). This traditionally provides the most cost-effective means of quickly and safely gathering large quantities of waste without the labour intensive requirements of a sack or manual bin systems. A few such systems are retained in special localised circumstances.

Full details of the methods and costs of operating these services are best found in the Audit Commission’s Report on value for money in local authority waste collection system services, entitled ‘Benchmarking Refuse Collection’ published in April 2000.

In terms of the types of vehicle used for mainstream waste collection, existing vehicles may well be used or there may be a change to introduce more compartmented vehicles to segregate the wastes into their different streams. However, the number of refuse collection vehicles dedicated to kerbside collections may substantially increase depending on frequency of uplifts from householders, and what type (if appropriate) of segregated collection is used. This means there is obviously a requirement for expansion of existing and construction of new waste-management facilities. This requirement for expanded and new infrastructure is discussed below.

Materials Recovery Facilities (MRFs)

In order to prepare received waste for reprocessing, the waste, whether source segregated or not, may have to be delivered to material recovery facilities for sorting, quality checks and bulking. Two distinctly different types of material recovery facilities will have to be considered by the local authorities in delivering their provision of the BPEO within the area.

Clean MRFs

This type of facility takes in the elements of the waste which have been segregated at source, i.e. from banks or bring schemes and from separate kerbside collections, where householders place the recyclable material in the a separate wheeled bin, bag or box from their general waste.

As there will be, typically, cardboard, paper, metal, textiles and plastics mixed together from kerbside schemes, they have to be sorted in this type of facility into their constituent parts (glass may well have to be collected separately from other wastes). This can be done manually or automatically or using a combination of both. Typically, the reject rate would be in the order of 3–6% of input.

‘Dirty’ MRF or Mixed-Waste Process Facilities (MWPFs)

This type of facility is less common, due to the absence of proven technology for separation. However, an intrinsic part of this type of facility will be a pre-treatment phase, to prepare the waste for manual and automatic sorting. The major benefit of such a facility is that it requires no change in the existing collection infrastructure. The attraction to this type of process is that 100% of the waste is available and that there is no reliance on public participation. This lack of public involvement does mean that the process is regarded as ‘socially exclusive’. MWPF can accommodate the material recovered through survival bags. This type of collection is through the traditional route, where segregated materials are placed in a bag, which is included with the mainstream collection, to be removed later. This type of process gained a poor review under the option appraisal due to both these factors and costs.
The received waste can be treated by a process such as autoclaving, composting or drying. In these processes the fibrous element is screened off, for use as a fuel or for biological treatment, such as composting or aerobic digestion. The remaining elements of the waste are separated either manually or by electro-mechanical means or a combination of both.

Landfill disposal sits at the base of the waste hierarchy for the following reasons:
- Potential pollution to land, air and water.
- It is a waste of resources and is considered to be unsustainable.

Landfill will, however, continue to form part of an integrated waste-management system of treatment and disposal of residual for the foreseeable future.

**Recycling Market Development**

It is clear that if Scotland is to make better progress in recycling, significant effort must be made to develop both national and local indigenous markets for recycled materials. Refer to Chapter 3.

**2.6.2 The Proximity Principle and Self-Sufficiency**

This means waste should be disposed of as near as possible to the point at which it arises. Most of waste originating in ADG is managed within the area, with the exception of wastes requiring specialist treatment, such as hazardous wastes, and wastes being sent for recycling, e.g. paper. These wastes are often transported as far as the south of England. Although this is likely to continue to be the case, as greater quantities of material for recycling are collected then there will be more opportunities for the development of local markets and reprocessing facilities in ADG and other parts of Scotland.

Full details of how each of the local authorities intend to implement and support the BPEO are set out in their position statements. These are reproduced in Annex 6 to this document.

**2.6.3 The BPEO**

BPEO is the outcome of a systematic and consultative decision-making procedure, which emphasises the protection, and conservation of the environment across land, air and water. The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long-term as well as in the short-term. In the way this has been applied within the NWSS framework this includes balancing social, economic and environmental costs and benefits. The ADG AWP describes the BPEO for MSWs and sets out the process by which the BPEO will be determined and implemented for all the other wastes.
3 Best Practicable Environmental Option for Municipal Solid Waste – The Strategy for Change

3.1 Introduction

A proposed generic BPEO was arrived at after detailed appraisal of a number of options and further amended after public consultation. Options were assessed against 14 nationally agreed social-economic and environmental decision criteria to assess the best performing option. These options were also subjected to life-cycle assessment by use of WISARD software. WISARD examined each option’s use of finite and renewable resources and emissions to the environment through the entire operation of the waste-management system. The generic approach of the adopted BPEO for the Waste Strategy Area is set out in Figure 3.1 below.

The model places an emphasis on the minimisation of waste at source and thereafter seeks to limit or minimise the amounts of materials falling to lower order of the hierarchy. The key values being expressed in this model are: commitment to reducing waste at source, a commitment to increasing the reuse, recycling and/or composting of materials through the use of source separated collection systems, a commitment to ensuring that the remaining waste, i.e. the mixed waste, does not go direct to end point disposal. In keeping with the aims of the hierarchy, mixed waste should be treated so as to further recover materials for recycling and/or composting, etc., thereafter consideration should be given to the further recovery of value from the waste. It is envisaged that the reliance on landfill be minimised, but no material will go directly to landfill and that only the residuals and unsuitable elements that fall out of the processes would end up being landfilled.

The detailed assumptions that went into the development of the BPEO along with the appraisal outputs are set out within the ‘WISARD Modelling Assumptions’ documents and is sourced within Annex 4 Associated Documents (Modelling Data).

Figure 3.1 – Generic Model (Repeated)
3.2 BPEO Determination

The BPEO process is an open and transparent process, which is intended to encourage stakeholder involvement and has been developed through the partnership working of the WSAG and consideration of responses to consultation. It is the final output plan of a process to profile a range of waste-management options over the next 20 years, appraisal of these options and establishment of a BPEO for the Waste Strategy Area. Where further detail is required on assumptions, appraisal outputs, consultation feedback, etc., these are available as additional working documents (see Annex 4 which lists associated reports) that should be read in association with this BPEO. A summary of the consultation outcomes is also available (see Annex 4).

Elements of BPEO for MSW

The repeated Figures 3.2–3.4 (below) outline the aspirational elements of the Ayrshire, Dumfries and Galloway Waste Strategy Area BPEO decision for each of the landfill directive years of 2010, 2013, 2020. This is based on a commitment to the values of the waste hierarchy and is modelled on maximum waste growth (as previously indicated). The detailed assumptions that went into the development of the BPEO along with appraisal outputs are set out within ‘WISARD Modelling Assumptions’ and ‘Options Appraisal Results’ documents and can be sourced from detail within Annex 4 - Associated Documents.

The BPEO targets throughout the section are strategic targets for the whole waste strategy area (unless indicated otherwise). Local Implementation Plans will set out the detail of the localised delivery systems based on each of the local authority’s ability to achieve a proportion of the overall Ayrshire, Dumfries and Galloway BPEO.

Figure 3.2 – Simplified BPEO Showing Additional Plant Capacity by 2010
Note: Data adapted from SWMBA (2001) Appendix 2 as modelled on maximum growth rate of 2%, these figures therefore represent an upper limit.

The figures and tables throughout Section 3 provide further detail on each stage of managing the area’s MSW, including indicative tonnages at Landfill Directive Target years of 2010, 2013 and 2020. Waste prevention and reduction measures represent one of the most critical elements to successful delivery of the BPEO.
3.3 Elements of the BPEO

3.3.1 Waste Prevention

To develop a waste-prevention plan for Ayrshire, Dumfries and Galloway, a scoping study will be required to assess the quantities and composition of industrial and commercial wastes arising and the potential for reducing or using these wastes. This study would involve SEPA’s Waste Minimisation Unit (WaMi), which specialises in waste prevention and minimisation and would draw upon the experience gained through other projects.

For commercial and industrial wastes it has been demonstrated in a number of projects that waste can be prevented at various stages of manufacturing processes, providing both a financial benefit to the company as well as reducing the environmental impact of waste. The key organisations for influencing commercial and industrial waste producers are the Local Enterprise Companies and trade bodies such as the Federation of Small Businesses. There have been numerous waste-prevention programmes dealing with commercial and industrial wastes demonstrating clear benefits.

In working with the National Resource and Waste Forum (NRWF), SEPA is developing a national framework to guide the work of the waste strategy groups and other key players on waste prevention. This will include research into best practice in waste prevention, both within the UK and abroad. The outputs from this research will be two-fold:

➔ Practical guidance to WSAGs on how to develop their own local waste-prevention plan, and the various tools and techniques to choose from

➔ National recommendations to policy makers and others on instruments that have been demonstrated as successful in preventing waste.

Using this guidance a waste-prevention plan for Ayrshire, Dumfries and Galloway can be developed. This plan will set targets, and identify actions to be undertaken locally. It will tie in to national initiatives on education, promotion and emerging policy instruments.

Household waste is by far the greatest proportion of MSW. By reducing growth of the household waste, the diversion required to meet the Landfill Directive targets can be significantly reduced.

Waste prevention can be achieved by the household and businesses through customer decisions about what to buy and how much packaging to accept, etc., and householders choices about how efficiently to use the products they buy and what to do with the products when they’re finished - bin them, pass them onto someone who can use them, use them again or use them for something different.

The commercial waste element of MSW also includes general office waste produced by public sector employers, including the local authorities and SEPA. This waste stream was not addressed specifically in the development of waste-management options; rather it was treated as part of the commercial waste stream. However, as waste producers, public sector bodies should take the lead in reducing the waste that they produce (see Action 3).

3.3.2 Reuse and Refurbishment

The reuse and refurbishment of waste is implicit in the Ayrshire, Dumfries and Galloway AWP. Value is retained and reuse and refurbishment activities can be used to stimulate social inclusion by providing employment and producing goods, which can be used by those who would otherwise struggle to afford goods of this type.

3.3.3 Recycling

The BPEO will require a significant increase in the quantities of materials collected and forwarded to reprocessors for recycling. This will involve significantly increasing the segregated kerbside collections of paper, plastic, textiles, and ferrous and non-ferrous metals. It is possible that glass will also be collected in this way, however, any collection system that produces a mixed (colour) glass fraction will limit the options for reprocessing glass. To achieve the recycling targets set out in section 3.4 will require increasing householder participation rates in segregated kerbside collections. This is illustrated in Table 3.2, which shows the levels of participation in segregated kerbside collection of dry recyclates, which requires to be achieved in each of the target years by each local authority.
There are a number of methods by which segregated kerbside collection can be undertaken. The method chosen will be dependent upon housing type and geographical location and will be determined after further investigation.

In addition to segregated kerbside collections there will be a need to progressively increase the number of mini recycling centres in each of the local authority areas. These will collect recyclates from households that do not have segregated kerbside collections and materials that are not suitable for segregated kerbside collection. All local authorities have given a commitment to identifying the numbers of mini recycling points, which will be needed in each of the local authority areas. The actual numbers required will be dependent upon the extent and success of segregated kerbside collection schemes.

In addition, new facilities and infrastructure will be required in order to sort and package recyclable materials prior to onward transportation to reprocessors. This is likely to involve an upgrade of existing transfer stations or alternatively the provision of a dedicated clean materials recycling facility.

The ADG WSAG will work in partnership with all appropriate stakeholders to develop a strategy for the implementation of separate kerbside collection systems, for dry recyclate, over the next 10 years. An initial report on the implementation of kerbside collection systems will be produced by the WSAG by April 2003 as part of the future monitoring process – under Action 19.

This report will allow a bid to the Strategic Waste Fund for funding kerbside collection schemes for the collection of dry recyclates in all local authority areas.

### 3.3.4 Composting

Composting currently confined to open windrow systems, which mainly deal with garden waste. In order to compost a greater variety and volume of wastes in a controlled manner, more sophisticated systems will probably have to be used in the future to produce a high quality product. These systems are outlined below:

As the technology for composting evolves in the light of market requirements and the emergence of composting standards, it is felt inappropriate to be overly prescriptive in the type of facility that will be used for the composting process. However, large-scale facilities will be operated indoors and can take the form of:

- in-bay composting
- in-vessel composting
- anaerobic digestion (AD) – while this is not strictly speaking composting, this process involves the biodegradation of waste, in the absence of oxygen (see Annex 1). Unlike composting, where the gases are emitted directly to atmosphere, AD recovers the methane generated, with a view to recovering the energy value. For this reason anaerobic digestion is also mentioned in the Recovery Section.

Increasing the quantity of separately collected compostable kitchen and garden wastes will also be required. This will be achieved using segregated kerbside collections (kitchen and garden compostables) and recycling/civic amenity sites provided with separate skips (compostable garden wastes). To achieve the composting targets (see Table 3.3 over) will again require increasing householder participation rates in segregated collections.
Table 3.2 - Composting Targets (as percentage output)

<table>
<thead>
<tr>
<th>By Year</th>
<th>North Ayrshire</th>
<th>South Ayrshire</th>
<th>East Ayrshire</th>
<th>Dumfries and Galloway</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>2013</td>
<td>15%</td>
<td>20%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>2020</td>
<td>15%</td>
<td>27%</td>
<td>15%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Note: Aspirational targets as set out in Local authority position statements (see Annex 6)

A number of compost operations will be established across the WSA. It is likely that in-vessel type technology will be required to compost kitchen wastes in order to kill pathogens and comply with the Animal By-Products Order. At this stage it has not been determined whether to compost kitchen wastes or use methods of alternative treatment. It is expected that the WSAG will investigate the most suitable future composting processes to be established and materials to be composted, making recommendations for inclusion in Local Implementation Plans, in line with action requirement 10,11,14 and 15.

3.3.5 Other Recovery Technologies

These are detailed in Section 2. The use of appropriate other recovery technologies will be considered by the WSAG. These technologies will only be used as part of an integrated waste-management system alongside recycling and composting.

It is clearly unacceptable to merely move from a regime of landfilling the majority of waste to one that advocates total thermal treatment in any of its forms. Such an approach has been rejected in the BPEO analysis. The flexible option proposed recognises that some form other appropriate waste-recovery technologies will be used after 2010 to enable the 2013 and 2020 diversion targets to be successfully met. These technologies include processes such as thermal treatment and other emerging waste-treatment technologies. It should be noted that if recycling and composting activities surpass the percentage targets shown above, then the need for additional technologies will decrease accordingly. However, should monitoring of the plan indicate that recycling and composting rates will not be sufficient to meet diversion targets, then other appropriate waste recovery technologies will have to be used to meet the shortfall. It is expected that other waste-recovery technologies will be assessed for suitability by the WSAG and a decision taken by 2006 on future inclusion within the ADG BPEO (links to other Guidance are available in Annex 3).

3.3.6 Disposal to Landfill

MSW that is not recycled, composted or treated in other ways will be disposed of to landfill. Over the 20 year time frame of this plan there will be a significant reduction in the amount of waste going to landfill and in particular the biodegradable waste going to landfill.

In the short term it has been identified that an additional landfill site for MSW will be required in North Ayrshire Council area (SWMB 2001). Otherwise there is sufficient landfill capacity across the WSA.
3.3.7 Household Hazardous Waste

Elements of the household waste stream can pose a considerable risk to the environment if they are not handled and disposed of correctly. Although a relatively small percentage stream, less than 1%, they do contribute strongly to its environmental impact, particularly if incinerated or landfilled as part of the general household-waste stream. Such materials are known collectively as hazardous household waste and include asbestos, household cleaning products, pesticides, medicines, batteries, fluorescent tubes, waste oils, solvents and thinners, wood preservative, sharps and needles.

There is little experience of the separate collection and management of such wastes in the UK, although this is much more common in continental Europe and North America. The benefits of such an approach can include reduced water and air pollution, reduced public concern over thermal treatment processes and possibilities for recycling and reuse. The EU is working on a draft Directive on household hazardous waste and this is expected around 2004.

A national partnership project is being delivered to investigate the options available to local authorities in Scotland for collecting household hazardous waste separately from the domestic waste stream. Once an initial study has taken place to review the current situation on household hazardous-waste recovery in the UK and Europe and what future legislation will mean for local authorities, pilot collection trials will be implemented to accurately determine the logistical and economic realities of separate household hazardous-waste collections. The project will also investigate current public awareness of the issues to develop effective education campaigns.

3.4 Indicative Performance Targets for BPEO

Despite the target dates or diversion of MSW from landfill being staged from 2010 to 2020, the overall scale of the task ahead should not be underestimated. By 2020, it is hoped that we can move from current reliance on 96% landfill disposal, to just 28% of total MSW arisings in the area. In tonnage terms this represents almost 360,000 tonnes of biodegradable waste being diverted from landfill across the waste strategy area by 2020 (as modelled at maximum growth rate of 2% each year). This should be compared with the diversion compliance figure of some 240,000 tonnes identified in the Summary of Waste-management tables below).

Figures 3.5, 3.6 and 3.7 and Tables 3.3, 3.4 and 3.5 outline the objectives of the BPEO with respect to waste diversion by the target years 2010, 2013 and 2020. The proportion of waste diverted to each treatment method is also outlined, as are the diversion targets for each target year. It is implicit that all Landfill Directive Targets will be met within the overall BPEO Targets set out throughout this section and contributes to the 25% recycling and composting national target by 2006.

Note the following tables and diagrams share the same underlying assumption. Specifically they are:

- Modelled on maximum 2% growth rate 'worst case scenario'–SWMBA (2001) Appendix 2. At 0% plus population change, the tonnages would be almost half.
- Model adjusted to avoid double counting of treatment outputs, i.e. water vapour losses are attributed to compost outputs as well as refuse-derived fuel.
- Energy from waste refers to pyrolysis/gasification plant in DGC only. The material going to energy recovery is a refuse-derived fuel.

All tonnages are indicative and apply across the WSA. They are intended as a guide rather than rigid targets. Individual local authorities may have a different mix of treatments to achieve the overall diversions and these will be set out in local delivery Implementation Plans.

If required, other appropriate waste recovery technologies will be used after 2010 to enable the 2013 and 2020 diversion targets to be successfully met. These technologies include processes such as thermal treatment and other emerging waste treatment technologies. These technologies will be assessed for suitability by the WSAG and decision taken by 2006.

It should be noted that should recycling and composting activities surpass the percentage shown, then the need for additional technologies will be decreased accordingly. However, should monitoring of the plan indicate that recycling and composting rates will not be sufficient to meet diversion targets, then other appropriate waste-recovery technologies will have to be used to meet the shortfall.

The energy from waste element is based on the 30,000 tonnes of refuse-derived fuel that Dumfries and Galloway will be diverting as specified in the Waste Management/Recycling PFI Project. No additional energy from waste elements have been planned for.
Table 3.3 - Summary of Waste Management by 2010

Objective by 2010
Projected MSW Arisings - 417,000 tonnes per annum (max 2% growth per annum from SWMBA 2001)

Waste Treatment Methods
Composting output: Increased from 3% (1998) to 14%
Recycling output: Increased from 4% (1998) to 19%
Other recovery/treatments: Increased from 0% (1998) to 51%
Landfill: Decreased from 93% (1998) to 59%

Note: Landfill and other recovery treatment processes expressed as input percentage of total MSW. Waste going to other recovery/treatment processes yield composting and recycling outputs hence figure will not add to 100%

EC diversion targets
BMW Permitted to landfill = 140,000 tonnes
BMW landfilled using BPEO = 74,000 tonnes
Estimate Diversion Achieved = 187,000 tonnes (of the total tonnes MSW diverted)

Figure 3.5 Schematic of Waste-management Option for MSW by 2010
Table 3.4 - Summary of Waste Management by 2013

Objective by 2013
Projected MSW Arisings - 443,000 tonnes per annum (max 2% growth per annum from SWMBA)

Waste Treatment Methods
- Composting: Increased from 14% (2010) to 16%
- Recycling: Increased from 19% (2010) to 23%
- Other recovery/treatments: Decreased from 51% (2010) to 49%
- Landfill: Decreased from 59% (2010) to 46%

Note: Landfill and other recovery treatment processes expressed as input percentage of total MSW. Waste going to other recovery/treatment processes yield composting and recycling outputs hence figure will not add to 100%

EC diversion targets
- BMW Permitted to landfill = 93,000 tonnes
- BMW landfill using BPEO = 62,000 tonnes
- Estimate Diversion Achieved = 240,000 tonnes (of the total tonnes MSW diverted)

Figure 3.6 - Schematic of Waste-management Option for MSW by 2013
Table 3.5 - Summary of Waste Management by 2020

Objective by 2020
Projected MSW Arisings - 508,000 tonnes per annum (max 2% growth per annum from SWMBA)

Waste Treatment Methods
Composting: Increased from 16% (2013) to 18%
Recycling: Increased from 23% (2013) to 34%
Other recovery/treatment: decreased from 49% (2013) to 44%
Landfill: Decreased from 46% (2013) to 28%

Note: Landfill and other recovery treatment processes expressed as input percentage of total MSW. Waste going to other recovery/treatment processes yield composting and recycling outputs hence figure will not add to 100%

EC diversion targets
BMW Permitted to landfill = 65,000 tonnes
BMW landfilled using BPEO = 43,000 tonnes
Estimate Diversion Achieved = 254,000 tonnes (of the total tonnes MSW diverted)

Figure 3.7 Schematic of Waste-management Option for MSW by 2020
The waste strategy group is confident that even under worst-case conditions the EC landfill directive targets will be met. They have already demonstrated a commitment to diverting 72% of their waste away from landfill (see Exec. Summ. Table 2). The key target is the amount of BMW they are allowed to landfill. What the waste strategy group achieve is very much dependent upon the recovery rates of the processes implemented and the participation rates. The BPEO schematics (above) are modelled on recovering 50% of the available recyclate. The schematics use a national set of parameters for the composition of household waste. These parameters are reproduced in Figure 3.8 (below).

**Figure 3.8 - Composition of Household Waste**

<table>
<thead>
<tr>
<th>Fines</th>
<th>Metals</th>
<th>Putrescibles</th>
<th>Glass</th>
<th>Misc non-combustables</th>
<th>Misc combustables</th>
<th>Plastics</th>
<th>Paper and Card</th>
<th>Textiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>2%</td>
<td>7%</td>
<td>20%</td>
<td>9%</td>
<td>11%</td>
<td>8%</td>
<td>2%</td>
<td>7%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Source: Department of Environment, 1992-1993 Household Waste Analysis Programme

If we examine the performance of the BPEO against the permitted BMW landfill targets, we can see why the waste strategy group is so confident. Table 3.6 demonstrates that achieving a BMW diversion to satisfy the modelled ‘worst-case scenario’ is achievable. What is remarkable about this is that no attempt has been made to utilise weight loss from mixed-waste-treatment technologies driving off water vapour and carbon dioxide in the calculations. All the local authorities are looking to introduce some form of additional treatment technology. Dependant on the technology adopted, then between a quarter and half of the weight of waste processed can be diverted as water vapour and CO₂, plus they will boost their recycling/composting outputs, plus they can produce an end product suitable for some other use, i.e. not landfilled.

Given that the BPEO seeks additional treatment for approximately half of the waste, then a comfortable margin for error can be counted on. Such an approach also allows the treatment of all the putrescibles plus the ‘contaminated’ fractions that can’t be directly recycled/composted.

**Table 3.6 - BMW Diversion Performance**

<table>
<thead>
<tr>
<th>By EC Target Years</th>
<th>Waste Strategy Group Performance for Diverting BMW from Landfill</th>
<th>BMW Diversion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Composting (garden waste, textiles and wood)</td>
<td>Recycling (Paper, card, fuel-DGC only)</td>
</tr>
<tr>
<td>2010</td>
<td>58,000</td>
<td>40,000</td>
</tr>
<tr>
<td>2013</td>
<td>99,000</td>
<td>50,000</td>
</tr>
<tr>
<td>2020</td>
<td>156,000</td>
<td>87,000</td>
</tr>
</tbody>
</table>

Source of waste data: SWMBA appendix 2.

The amount of BMW going to Landfill is shown in Table 3.7. These figures can then be compared to the maximum amount of BMW allowed to landfill under the directive, as set out in Table 3.8.
Table 3.7 - BMW Diversion and Landfilling Projections using BPEO

<table>
<thead>
<tr>
<th>By Year</th>
<th>2010</th>
<th>2013</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total MSW</td>
<td>417,000</td>
<td>443,000</td>
<td>509,000</td>
</tr>
<tr>
<td>Total BMW</td>
<td>250,000</td>
<td>266,000</td>
<td>305,000</td>
</tr>
<tr>
<td>BMW Diversion</td>
<td>128,000</td>
<td>179,000</td>
<td>273,000</td>
</tr>
<tr>
<td>BMW Landfilled</td>
<td>122,000</td>
<td>86,000</td>
<td>32,000</td>
</tr>
</tbody>
</table>

Source: Data from SWMBA 2001 Appendix 2 (rounded to nearest thousand)

The bottom line is that the BPEO is based on a worst-case scenario. It confidently predicts the delivery of the diversion targets (see Table 3.7 above) with a comfortable factor of safety.

Table 3.8 - Delivery of BMW Landfill Targets

<table>
<thead>
<tr>
<th>By Target Years</th>
<th>BMW Permitted to Landfill*</th>
<th>BMW Landfilled (in accordance with the BPEO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>140,000</td>
<td>122,000</td>
</tr>
<tr>
<td>2013</td>
<td>93,000</td>
<td>86,000</td>
</tr>
<tr>
<td>2020</td>
<td>65,000</td>
<td>32,000</td>
</tr>
</tbody>
</table>

Source: SWMBA 2001 Appendix 2 (rounded to nearest thousand).

Proof of the effectiveness of the BPEO will lie in what it delivers. While the WSAG is reluctant to impose fixed targets without a national framework to follow, it has acknowledged that monitoring and review is required, giving an indication of progress. This principle of monitoring and continuous improvement is central to good management. To ensure that the BPEO objectives will be achieved, the WSAG will need to periodically review progress. It is expected that WSAG will produce an Annual Report to record and disseminate information on progress made and the AWP itself will be reviewed every 5 years (see Action 19).

Figure 3.9 below shows the levels of treatment required over the period of the plan and gives an indication of the stages to be reached to ensure that the waste diversion objectives of the AWP are met on time. These are consistent with the diagrams and tables shown on previous pages.

Figure 3.9 - Proposed Changes in How Waste is Dealt with Between 1998–2020
3.5 Implementing and Supporting the BPEO

Full details of how each of the local authorities intend to implement and support the BPEO are set out in their position statements. These are reproduced in Annex 6 of this document.

3.6 Cost of BPEO

A broad estimate of the cost of implementing the BPEO for Ayrshire, Dumfries and Galloway has been calculated using a standard approach adopted by all Waste Strategy Areas as developed by ERM. This provides an indication of the likely cost of the BPEO for collection, treatment and disposal of municipal solid waste over the next 20 years. It includes likely revenues from sale of materials and energy recovered from waste and the effect of possible increases in landfill tax.

It is estimated that the annual cost of operating municipal waste (collection, treatment and disposal only) will increase from £71 per tonne today to £98 per tonne in 2010 and £92 per tonne in 2020, as new approaches to waste collection, recycling, treatment and final disposal are introduced. This is based on waste arisings growing at 2% per year until 2020.

In addition to these regular running costs, Ayrshire, Dumfries and Galloway is projected to need to spend £106.8m on new waste-management infrastructure over the next 20 years. Indications of the likely additional infrastructure have been set out in the previous sections.

Taking the operating and capital cost together the average overall cost per tonne of waste over the next 20 years is estimated to be about £104/tonne*. It should be noted that the figures quoted above are only approximate and are provided to give an indication of the potential level of capital investment and added day-to-day costs needed to meet our objectives. There are many uncertainties and assumptions in the data used, but we can be reasonably confident about the likely scale of change required. It should be noted that the per tonne figures should not be compared with the price of current waste operations (e.g. the gate fee for landfill or energy from waste facilities) as these include only some of the elements of cost included in the calculation.

The focus of the process to establish the BPEO was to find the optimum methods of waste treatment that should be used to at least meet the three landfill reduction targets set by the Landfill Directive (i.e. permitted to landfill 75%, 50% and 35% of 1995 levels of BMW sent to landfill, by 2010, 2013, and 2020 respectively). In the light of the draft AWPs published in spring 2002, the Executive has calculated that an interim overall national target of recycling and composting of 25% of waste collected by local authorities is achievable by 2006 by implementation of AWPs, and has allocated £230 million for the financial years 2003/04, 2004/05, 2005/06 through the Strategic Waste fund to achieve that target. The indicative costings set out in this plan will be further refined in each of the local authorities implementation plans for the purpose of Strategic Waste Fund bids. Further information on national costings is provided in the National Waste Plan (2003), available at www.sepa.org.uk/nws.

Authorities will be expected to seek grant support from the Strategic Waste Fund to assist with the additional costs of implementing the AWPs and will be expected to ensure that delivery of the plans will contribute to the 2006 targets.

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*This figure is calculated from the net present value of costs of waste management over 20 years derived using a 6% discount rate, divided by the net present value of the total quantity of waste over 20 years, also at 6% discount. All figures are at current prices. No allowance is made for potential revenues from surplus landfill permits, packaging recovery notes or renewables obligation certificates, or potential costs of purchasing landfill permits if there is a deficit. The value of landfill gas is also not included.
3.7 Recycling Market Development

It is clear that if Scotland is to make better progress in recycling, significant effort must be made to develop both national and local indigenous markets for recycled materials. Progress can also be made in improving the logistics of supply to markets outside Scotland. The UK national WRAP (Waste Resources Action Programme) and ReMaDe (Recycling Market Development) programmes have been established to support Scotland’s Recycling Market Development.

WRAP (The Waste and Resource Action Programme www.wrap.org.uk) is a £40m UK wide programme funded for 3 years (established 2001) to change attitudes to waste minimisation and recycling through the creation of stable and efficient markets for recycled materials and products. The programme is looking at material specific research and development projects, compost standards, delivering training programmes, and government procurement. WRAP is working closely with ReMaDe and other organisations, addressing barriers to recycling including market development, supply chain issues, investment packages to reduce business risk in new technologies and processes, and supporting the development of recycling infrastructure.

The ReMaDe Scotland (Recycling Market Development www.remade.org.uk) programme was established in 1999 to identify potential markets and uses for recovered materials in Scotland. It is the key focal point for recycling market development in Scotland and is seeking to increase recovery of waste, create jobs, support the AWP and local recycling businesses through encouraging investment, supporting local partnerships and engaging wider awareness in uses of recovered materials.

In addition to the above, there is significant scope for the local authority members of the WSAG to gain higher and more stable prices for recyclates going to reprocessors if they engage in collective bargaining with industrial reprocessors. Such a supply consortium could also result in the types of benefits associated with Waste Exchanges, where for example excess compost from one local authority area could be traded with another local authority that has a need for additional material. It is expected that WSAG members will investigate the possible benefits of establishing such waste supply consortium to negotiate with major industrial reprocessors so as to boost recycling/composting development and use, in line with Action 10, 14 and 15.

It is a valid argument that we should set targets, not for recovery rates, but for the recycled content of products. This would have the automatic effect of driving the need to recover materials for recycling, rather than deciding on recovery levels and then having to find appropriate markets. An example of this is the recycled content of newsprint. The ability exists to make newsprint from 100% recycled paper. Such a development would possibly entail expansion of newsprint mills, one of which could be located in the area. The potential tonnage to be recovered for recycling should stimulate innovation and develop local reprocessing facilities, which could serve the needs of the WSA and other parts of Scotland.

Part of the work being carried out on the priority waste stream projects is the identification of both the recyclable content of individual waste streams and markets for the reprocessed material (see Section 4 for details).

3.8 Education and Awareness Raising

The National Waste Strategy: Scotland makes it clear that there needs to be a fundamental shift in attitudes and behaviour of all waste producers in Scotland. There must be an integrated effort of promotion and education to ensure that both householders and businesses are fully aware of the objectives of the AWP and have an opportunity to contribute, particularly to the proposed waste recycling and recovery arrangements and waste-minimisation initiatives.

The Scottish Waste Awareness Group (SWAG) is a resource for the NWSS to deliver public awareness campaigns to the public. These would be carried out both qualitatively (through focus groups) and quantitatively (by door-to-door surveying). Research has been conducted across Scotland to collate baseline data on public attitudes, behaviour and needs. The information generated from this exercise is being used to develop a national resource of promotional material that will support any subsequent local campaign strategies and ensure national consistency of the key ‘Reduce, Reuse and Recycle’ message when engaging with the local community.

SWAG will support the WSAG on the local delivery of campaigns tailored to the requirements of the WSA on domestic waste management and reduction throughout the whole of Scotland. In order to focus these campaigns a steering group will be formed comprising representatives from SEPA, local authorities, any other significant education providers and SWAG. See Annex 3 for further detail on the proposed campaign strategy.
Action 5
WSAG to develop programmes and events targeting stakeholder involvement for specific objectives to develop recycling markets.

Action 6
WSAG to target stakeholder involvement for specific promotion and education objectives.

3.9 Community Involvement

The current and future role of the community sector’s involvement in methods and solutions for moving MSW up the waste hierarchy will be important to the delivery of the BPEO. There is already a long history of community-based and run projects in Ayrshire, Dumfries and Galloway. Locally operated and managed community projects bring social benefits through creation of employment and social inclusion.

In recognition of the growing importance of the community recycling sector, RAGS has been awarded a grant to establish a community recycling network for Scotland.

The aim is to establish a development agency style approach that will be built into the national framework to support community recycling but will be delivered at local level. The aim of this approach will be to increase the width of expertise within the sector, increase the number of practitioners and projects, identify opportunities in relation to local AWPs, overcome local/national barriers and promote long term sustainability.

It is important, however, that the network being proposed is accessible and relevant at all levels. As well as a national perspective to news and information, there should also be a local support structure to aid development of initiatives in line with local waste strategies.

In keeping with Actions 9, 10, 12 and 17 the WSAG is likely to investigate the potential for future working arrangements with the Community Recycling Network in ADG. This would be aimed towards developing appropriate local delivery of the AWP, and the possibility of developing appropriate local support network for this sector.

3.10 Ayrshire, Dumfries and Galloway BPEO Into National Context

Whilst the development of the 11 AWPs and the BPEOs have been developed at an area level responding to local needs, it must be recognised that each local plan will contribute to the overall National Waste Plan for Scotland. There may also be opportunities for partnership working across waste strategy area boundaries to ensure Ayrshire, Dumfries and Galloway, and Scotland as a whole, meets its obligations to divert waste from landfill, increase the value recovered from wastes and protect human health and the environment.

The Ayrshire, Dumfries and Galloway AWP and the BPEO have been through a process of integration and briefly outlined below, however, the main conclusions are included within the National Waste Plan:

- Large-scale facilities do not necessarily bring significant economies of scale and loss of flexibility can result.
- Large-scale facilities can bring benefits in terms of access to markets and price commanded in accumulating as large a mass as possible of the highest possible quality of recyclates.
- Composting should be undertaken on WSA or smaller scale.

These conclusions will be taken into account when carrying out the detailed implementation planning of the MSW BPEO for Ayrshire, Dumfries and Galloway.
3.11 Risks to Implementation

There is a range of risks that have been identified at both the national level and local level which if realised could compromise the successful and timely implementation of the AWP. These risks have been identified examples of such risks include:

- reliance on significant cultural change
- failure to secure adequate funding
- lack of partnership working and limitations in public procurement
- failure of recycling markets to meet the needs of increased material collections
- gaps and uncertainties in data projections and underestimation of infrastructure required
- failure of national supporting projects to deliver outcomes, e.g. packaging regulations, Waste Aware Scotland, WRAP and ReMaDe.

The action plan (Annex 2) aims to address these issues.

3.12 Future Developments

The BPEO for MSW in ADG has been chosen with regard to a given set of assumptions and with currently available methods and technologies. It is accepted that changes in legislation, technology or knowledge may mean the chosen BPEO could be superseded. To allow for future developments or proposals not included in the plan, BPEO will be kept under review and may be superseded by valid proposals that can be shown to provide a better (or equivalent) BPEO. The WSAG will consider evaluation relevant waste-management proposals for an improved BPEO as they arise.

The options included in the BPEO evaluation are generic and for the most part, with the exception of Dumfries and Galloway who are at an advanced stage in their private/public partnership project, not site-specific. Hence site-specific development proposals that arise both inside and outside the borders of the Waste Strategy Area are valid and may satisfy or improve the agreed BPEO.

Regional or national-scale waste facilities may be proposed by developers at a scale designed to attract waste from outside the WSA in which they are located. As part of the planning application process, the developer will be required to demonstrate that the proposals satisfy or exceed the BPEO of the WSA from which the waste will be obtained as well as for the area receiving the waste. The results of this BPEO evaluation will be a material consideration in the planning process for such developments.

Where existing or proposed regional or national-scale facilities will result in waste movement between WSAs, then consideration of the proposed waste exports and imports must be included in the BPEO process, as described in the following sections.

The ‘Export or Import’ of waste should be considered as part of the BPEO process for both the importing and exporting areas, where it is proposed as an original or developing option. Any subsequent review of the BPEOs should also take this into consideration. Approval of the proposed waste-management facilities in the importing area is a matter for consideration by the planning and licensing authorities.
4 Managing Non-Municipal Solid Wastes

4.1 Introduction

Over 12 million tonnes\(^5\) of waste arose from Scotland’s homes, shops, offices and industry in 1998. Currently, however, due to the lack of complete and robust data for all wastes, the development of the BPEO for Ayrshire, Dumfries and Galloway has initially focused on MSW which equates to almost 0.5 million tonnes of this total waste stream (see Chapter 3). This chapter focuses on all non-MSW. Currently non-MSW is regarded as all industrial wastes and all commercial wastes not collected by the local authorities.

A framework to address the management of non-MSW, which forms the largest part of the wastes produced in Scotland, has been developed through a partnership between representatives from SEPA, Scottish Executive, the enterprise community and the waste-management industry. These wastes will be a major focus for the future development of the National Waste Strategy: Scotland and the local AWPs.

The non-MSW are more complex than MSW collected by the local authorities, and significant data gaps exist. Whilst the BPEO process initially developed by SEPA has been successfully applied to MSW, it has become apparent that the process needed to be reviewed and redefined when dealing with other waste streams.

The partnership approach that is at the heart of the National Waste Strategy: Scotland development has been a success and should continue. For this reason a multi-stakeholder group was brought together to obtain preliminary views and input into a management approach for non-MSW.

The key issues for the non-MSW framework are:

- **Waste Arisings Data** – the lack of requirement to record and report waste arisings data that has contributed to the absence of sufficiently detailed data required to make a BPEO decision.
- **Producer Behaviour** – tools that are currently available and those that need to be developed further to influence the behaviour commercial and industrial waste producers to ensure the adoption of the BPEO.
- **Non-MSW Plan** – provision of a detailed plan to ensure that the NWSS and local AWPs deal with all controlled wastes and do not just focus on MSW.

4.2 Specific Waste Streams

Using the consolidated European Waste Catalogue (August 2002) all listed wastes have been grouped into compatible industry sectors. These groupings will form the basis of future work on other Directive wastes. Any links with the current Priority Waste Stream programme and existing Technical Guidance, Best Practice, etc., have been made along with possible links to current BPEO technology options for MSW as set out in the AWP.

The waste groupings are detailed in Table 4.1 below.

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\(^5\)This figure does not include agricultural, mining and quarrying wastes as these are currently not controlled wastes as defined by the Environmental Protection Act 1990.
Table 4.1 - Waste Groupings

<table>
<thead>
<tr>
<th>Waste Grouping</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Exploration, Mining, Quarrying and Physical/Chemical Treatment of Minerals</td>
</tr>
<tr>
<td>B</td>
<td>Animal/Fish wastes (Agriculture, Aquaculture, Hunting, Fishing, Food Preparation/Processing)</td>
</tr>
<tr>
<td>C</td>
<td>Plant wastes (Agriculture, Aquaculture, Hunting, Fishing, Food, forestry Preparation/Processing)</td>
</tr>
<tr>
<td>D</td>
<td>Leather, Fur and Textile Industries</td>
</tr>
<tr>
<td>E</td>
<td>Petroleum Refining, Natural Gas Purification and Coal Pyrolysis</td>
</tr>
<tr>
<td>F</td>
<td>Wastes from Inorganic Chemical Processes</td>
</tr>
<tr>
<td>G</td>
<td>Wastes from Organic Chemical Processes</td>
</tr>
<tr>
<td>H</td>
<td>Wastes from Thermal Processes</td>
</tr>
<tr>
<td>I</td>
<td>Wastes Surface Treatments/Coatings (Metal and Other Materials)</td>
</tr>
<tr>
<td>J</td>
<td>Waste Organic Solvents, Refrigerants and Propellants</td>
</tr>
<tr>
<td>K</td>
<td>Waste Packaging (Absorbents, Wiping Cloths, Filter Materials and Protective Clothing)</td>
</tr>
<tr>
<td>L</td>
<td>Wastes not otherwise stated</td>
</tr>
<tr>
<td>M</td>
<td>Construction and Demolition Wastes (Soil from Contaminated Sites)</td>
</tr>
<tr>
<td>N</td>
<td>Human and Animal Healthcare Wastes (Research Wastes/Excluding Kitchen Wastes)</td>
</tr>
<tr>
<td>O</td>
<td>Water Industry Wastes (Water/Sewage Treatment Wastes)</td>
</tr>
<tr>
<td>P</td>
<td>Other Waste Industry Wastes</td>
</tr>
</tbody>
</table>

4.2.1 Prioritisation of Projects

A decision matrix has been developed to classify the wastes into high, medium and low priority projects. This has been based on the following considerations.

- Links to MSW BPEO
- Hazardous content
- Recovery/recycling value
- Sectoral importance (to the Scottish Economy)
- Infrastructure shortfall in Scotland
- Quantity
- Finite resource use
- Legislative/regulatory priority.

These projects will be managed at either the local or the national level depending on the geographical distribution of arisings. Section 4.3 details how this AWP will contribute to the outputs of these projects.

Technical groups consisting of the key waste producers, waste managers and other stakeholders specific to each of the sector groupings will be formed to drive the range of projects forward. The membership of these groups is very important to ensure ownership and credibility of the project outputs by those sectors that produce and manage these wastes for the future. The groups will undertake and commission work that will seek to provide the recommended outputs listed overleaf:
Establish reliable baseline data and existing regulatory controls
Report on current practices to deal with waste
List current facilities and technologies
Identify emerging technologies and processes
Recommend good practice and links to existing best practice guidance
Provide guidance on identifying local BPEO and the use of life-cycle analysis
Produce User Guides
Identify problematic wastes that may require further research
Identify waste minimisation tools
Identify skills gaps and training opportunities
Identify barriers to achieving BPEO and recommendations to overcome
Describe benefits and opportunities to implementing BPEO
Identify necessary regulatory controls and other drivers
Identify any necessary economic and regulatory impact assessments for the sector
Identify enterprise opportunities and social benefits.

4.2.2 Self-Assessment Guidance for BPEO Decision Making
Not all wastes can be addressed as a high priority and timetabling of BPEO projects will be over the longer term. There are opportunities to encourage the widespread use of the BPEO decision-making processes that consider environmental, economic and social aspects when dealing with these wastes. The development of generic 'Self-Assessment BPEO Guidance for Industry and Commerce' will provide a valuable and consistent process for waste producers, waste industry and waste regulators alike, when making localised assessments on the best sustainable options available and the use of the life-cycle assessment. In order to achieve widespread industry ownership and acceptability of the guidance, it shall be developed in an inclusive manner with consultation involving key stakeholders and will be undertaken at national level.

4.3 Local Non-Municipal Solid Waste Framework

4.3.1 Non-MSW Data
The lack of comprehensive and reliable waste arisings data (i.e. waste types and quantities) has restricted the local planning process for non-MSW. In order to plan effectively for the management of these waste streams an appropriate dataset will require to be gathered. The recent introduction by SEPA’s waste data team of quarterly surveys of licensed waste-management facilities will, in time, deliver a dataset of all wastes managed at licensed sites in Scotland. In addition the Ayrshire, Dumfries and Galloway WSAG will undertake to fill this data gap locally as part of the nation framework.

Following data capture and interpretation, a review of the capacity and type of existing facilities can then be carried out and the forward capacity required to maintain an adequate network of facilities identified on the basis of the current management systems for these wastes. It is expected that this ongoing data gathering and consultation process will also help to identify and establish local markets for recycled materials.

Action 7
WSAG to lobby for introduction of statutory recording of non-MSW arisings to enable these waste streams to be adequately planned for in the future.

Action 8
In conjunction with SEPA’s Data Strategy, the Waste Strategy Area Co-ordinators will instigate appropriate data collection studies to inform future developments for commercial and industrial waste management.
4.4 Specific Local Waste Streams

The framework described above will be applied nationally and locally to develop plans and best practice for dealing with non-MSW. There are wastes which are more important locally. These include the following:

➔ Service industry wastes
➔ Agricultural wastes
➔ Food processing wastes.

In addition there are wastes on which we have better data and information. This data and information has come from SEPA initiated priority waste stream projects.

4.4.1 Priority Waste Stream Projects

Waste streams of national significance, which may require national solutions, will be subject to a priority waste stream project. This initially involves data and information collection which is then reported. Of the 13 identified Priority Waste Streams Projects for Scotland, construction and demolition wastes, tyres, newsprint and end-of-life vehicles have reported. The conclusions of these initial reports are summarised below. Reference should be made to the full reports for the full set of conclusions.

4.4.2 Construction and Demolition Waste (C&D)

This waste stream is the largest single source of waste due to its high density. The SWMBA report estimated C&D arisings in Ayrshire, Dumfries and Galloway to be around 400,000 tonnes. Most of this is disposed of within the area, with a small amount exported for recycling. The priority waste stream project for construction and demolition waste has estimated that in the year 2000, C&D arisings in the area rose to 595,000 tonnes.

The Construction and Demolition Priority Waste Stream project study identified that nationally around 37% of the landfilled C&D Waste could be recycled. Realising this potential locally would create a further 220,000 tonnes of secondary aggregate that could replace virgin aggregate used for construction. Information on the current infrastructure for this waste stream can be found within the SEPA Priority Waste Stream Report or can be located on the CIRIA Internet Register of Recycling Sites (http://www.ciria.org.uk).

Through improved resource management of the construction industry, preventing or reducing the production of waste will have the maximum positive environmental impact, through reduced resource use, lower emissions and energy consumption. A full set of recommendations is detailed in the 'Construction and Demolition Priority Waste Stream Project Report – Data, Best Practice and Recommendations'. Development plans will need to identify a 10-year forward supply of landfill for inert and non-hazardous wastes. Construction and demolition wastes largely fall into these categories. It is expected that fiscal measures such as landfill tax and aggregates tax will provide further incentive to increase the reuse and recycling of this waste stream and reduce the quantities being landfilled.

4.4.3 Tyres

The National Data Study on Tyres collected data from the companies making up the tyre industry in Scotland (see Appendix 4 of the study). The data collected were incomplete and therefore the arisings were also calculated using a predictive model. Arisings in 1999 for ADG has been estimated at 3,220 tonnes. These breakdown into three categories – 2,250 tonnes Discarded by Replacement, 650 tonnes from end-of-life vehicles and 26 tonnes reported as illegally dumped. This figure if further broken down into arisings by car, small truck and large truck in the study.

Nationally, around 3% of tyres are reused, 13% recycled (via retreading and silage clamps/landfill engineering), and 49% landfilled. It should be noted, however, that since 1999 the situation is less bleak in that very few tyres arising in Scotland are now being landfilled direct and significant markets are now available with Lafarge Cement UK (formerly Blue Circle Cement Kiln in Dunbar) that use tyres as a coal substitute, and use of old tyres within landfill sites for engineering purposes, e.g. leachate drainage layer.

Implementation of the Landfill Directive will see a ban on whole tyres to landfill by July 2003 and shredded tyres by 2006.
4.4.4 Newsprint

Newsprint is a significant component of municipal and commercial waste streams, this project examined newsprint in the context of its suitability for recycling, its quantity and potential to stimulate large-scale industrial investment in Scotland, through the manufacture of newsprint from recovered materials.

The total newsprint waste arisings in Scotland in 1999 is estimated to have been approximately 240,000 tonnes – 6% printers waste, 11% over issue to sales outlets and 83% post consumer (based on sales data). The extent of post consumer newsprint waste arisings in ADG in 1999 was estimated at slightly over 15,000 tonnes.

Nationally, recovery of newsprint is estimated at 75% printers waste, 100% of over issues and 14% post-consumer newsprint. It is estimated that the requirements of the Landfill Directive targets to divert BMW from landfill will require the recovery of between 150,000 and 230,000 tonnes per year of newsprint waste by 2016, requiring a five to eightfold increase in recovery above current levels. It is unlikely that this will result in new mill capacity being developed in Scotland but a number of other potential outlets have been identified:

➔ Cellulose insulation materials
➔ Manufacture of waste newspaper briquettes for use as fuel
➔ Animal bedding
➔ Compost.

These outlets can be developed as new reprocessing opportunities occur but would require a stable and guaranteed supply of materials. This will require co-ordination and co-operation between local authorities and private sector organisations.

4.4.5 End-of-life Vehicles (ELVs)

There are two different categories of this waste stream:

➔ Premature ELVs – processed by insurance companies, end of life determined by damage as a result of an accident, fire, flood or theft
➔ Old ELVs – processed by local authorities and private owners/vehicle retailers, determined when a vehicle comes naturally to the end of its life, when it is between 10 and 14 years old.

The national study on ELVs estimates 1999 arisings in (cars and light good vehicles) to be 7251 vehicles, equating to 7106 tonnes (at 0.98 tonnes average weight of an ELV).

Current infrastructure indicates that there are 20 licensed dismantlers/scrap yards/metal recyclers in the waste strategy area. It is likely the higher standards required by the End-of-Life Vehicles Directive will result in a reduction in the numbers of dismantlers/scrap yards/metal recyclers over future years.

The report identifies Best Practice under the requirements of the End-of-Life Vehicle Directive that includes:

➔ Design of vehicles
➔ Recycling/recovering component parts before shredding
➔ Recycling/recovering material form shredder residue.

4.5 Waste Prevention and Reduction

In order to realise significant levels of waste minimisation a co-ordinated effort with government, government agencies and industry is fundamental. There will be a requirement for further regulatory and economic instruments, increased education and awareness and other measures to stimulate waste minimisation activity.

The ADG WSAG partners will consider the best means of initiating and delivering waste prevention and reduction support to companies in the area. Current activities include the Ayrshire Textiles Project, which identified returns of £538,000 across the 11 companies taking part in the project (representing a 1% return on turnover).

An Isle of Arran Waste Minimisation Project is currently being launched, which hopes to integrate with the sustainable waste-management issues being debated.
Dumfries and Galloway has a specific Waste Minimisation Forum (facilitated by SEPA), which is currently operating four minimisation projects. These include the Esk Water Project; based on industry around Langholm. The main interest of this project is to demonstrate a reduction in the toxicity of the water quality directly below the town’s sewage treatment plant outfall.

Projects currently being drawn up include:

➔ An agricultural based project. This focuses on the Kirtle catchment, but hopefully will yield some insights into waste generation from these sources, which can be extrapolated across the area.

➔ A food-manufacturing project. Food manufacturing is a significant local industry, which generates 7% of GDP in Dumfries and Galloway and employs 2800 people.

➔ A High Street based retail project. Located at Castle Douglas, this hopes to engage the entire High Street and yield returns and lessons, which can be applied across similar towns in the rest of the area.

Dumfries and Galloway has introduced a subsidised home-composting scheme, which has proved to be very successful, introducing home composters into some 6,000 households (9%) throughout Dumfries and Galloway. A recent survey by the Scottish Waste Action Group indicated that 36% of households in Dumfries and Galloway with gardens currently practice home composting.

South Ayrshire Council has embarked on an extensive home-composting project, and has now introduced over 11,000 new home-compost bins to householders. The council is also working closely with several partner organisations such as the West of Scotland Agricultural College at Auchincruive on waste-minimisation projects.

Girvan Sustainable Community is another initiative, which has been developed, and a Girvan waste minimisation group operates within the project.

The Energy Efficiency Advice Centre in Ayr provides information and assistance to the public on all forms of energy use. The centre has organised training courses for businesses on energy efficiency and waste minimisation. 5,728 businesses have been contacted by the centre within the last year and 150 businesses have been specifically trained on waste minimisation techniques. Over 50 employees in the leisure industry have been trained on waste minimisation, as have 50 domestic carers. This is the first energy agency of its type in mainland Scotland and European revenue funding has assisted greatly with its introduction.

Visit Scotland organised an environmental award scheme for businesses in South Ayrshire and other award schemes such as Vision in Business and Environment also contributed to waste minimisation within the district.

The three Ayrshire Councils have also formed the Ayrshire Waste Management Advisory Group, which involves officers of the councils meeting at regular intervals to discuss and implement a range of waste-management initiatives.

4.6 Reuse and Refurbishment

There is significant opportunity to get value from waste materials through reuse and refurbishment. Successful reuse and refurbishment schemes can also provide employment opportunities. Barriers to facilitating reuse and refurbishment opportunities exist the most common is the difficulty in making the connection between the waste producer and any potential users of the waste. Waste Exchange is a system where the waste of one individual can be considered the resource of another. Schemes of this type make connections between waste producers and potential users of the waste. While there are examples of waste exchanges operating in the UK, there are none currently in the ADG area at present. It may be possible to establish a local service or link into a nationally developed service.

Action 9
WSAG to develop reuse programmes and events targeting stakeholder involvement for specific objectives.
4.7 Recycling and Composting

The development of commercial recycling services has the potential to maximise the overall benefits and feasibility of the recycling and composting parts of the MSW BPEO, and will be encouraged wherever possible. Examples of integrated recycling schemes include:

- Office paper and cardboard recycling
- Glass recycling from pubs and clubs
- Composting of canteen, food processing, landscape gardening, agricultural wastes
- Plastic, steel and aluminium container recycling
- Oils, solvents and batteries
- Ferrous and non-ferrous metals.

The collection of waste materials significantly impacts on the recycling options available. Separate collection by material type increases the recycling opportunities available. The ADG WSAG in partnership with other stakeholders, including Scottish Enterprise, all encourage the separation of waste materials at source.

Action 10
WSAG to develop recycling and composting programmes and events targeting stakeholder involvement for specific objectives.

Action 11
WSAG to monitor the AWP implementation in achieving the composting and recycling targets identified to meet landfill diversion.

Action 12
Current home composting initiatives to be encouraged as a means of gaining willing participation and possibly reducing the waste to be managed.

4.8 Energy Recovery

The recovery of energy from non-MSW may be appropriate for a range of wastes. These include:

- Clinical waste
- Special waste
- Oily waste
- Tyres
- Sewage sludge
- Shredder residues
- Agricultural waste
- Industrial sludge.

Energy recovery through combustion has the advantage that it can effectively treat certain hazardous wastes. If biomass driven wastes are combusted the energy generated had the advantage of being generated from a renewable source. It should be noted that the actual wastes treated would depend on their nature, the technology of the plant chosen and the economics of managing the wastes.
4.9 Disposal

Significant quantities of non-MSW are landfilled in the Ayrshire, Dumfries and Galloway area. The majority of this waste is construction and demolition waste. There could be wastes currently disposed of to landfill which the Landfill Directive will ban from landfill in future years. The WSAG should ensure work is initiated to identify these wastes understand the infrastructure requirement.

As stated previously, SEPA is undertaking a range of Priority Waste Stream Projects, including one into construction and demolition wastes.

Action 13
Once SEPA has undertaken the above (Action 8) data collection studies to inform future developments for commercial and industrial waste management, the WSAG will consider how to implement.

4.10 Recycling Market Development

The waste screening process carried out as part of the national non-MSW Framework has identified shortfalls in current infrastructure for the range of waste groupings. This highlights potential local and national business opportunities to develop and provide facilities services to collect and reprocess waste materials.

Consultation has identified that local businesses and industry would like to recycle more of, and have improved access to, local markets for the following materials:
- Paper and cardboard
- Wood
- Plastic
- Metal
- Oil.

Action 14
WSAG required to investigate availability of reprocessors, markets and end users for recycled and composted materials within the Waste Strategy Area

Action 15
WSAG members to examine existing standards and specification for materials to enable, where appropriate, local recyclates and compost to be used locally

4.11 Education and Awareness Raising

The cultural shift that is required to change attitudes and behaviour is not only targeted at local householders. As key waste producers, local business and industry must also be involved in future education and awareness programmes. There is already a great deal of useful information available to businesses on waste and environmental issues and where required, complementary information will be further developed and disseminated widely. The promotion of information will be targeted wherever possible through the existing business environmental information network.

Action 16
Recycling education and awareness raising programme to be undertaken to ensure that the targets are achieved, where source segregation is required.

4.12 Waste Producer and Industry Involvement

Waste industry needs to be involved in the implementation of the AWP as they will, in many cases, be the major providers of investment in new infrastructure and provide considerable expertise in the management of wastes. Local businesses and industry must have their waste-management needs addressed to ensure that the Scottish Economy is supported by the National Waste Strategy and that good practice is promoted to all waste producers. To ensure the effective input of the waste-management industry and waste producers, local forums will be established to identify local needs, utilise and share local knowledge and expertise (see Action 17 and 18).
5 Developing and Implementing the Area Waste Plan

There are a number of important tasks to be taken forward following the publication of the AWP for the Ayrshire, Dumfries and Galloway Area. These actions will assist the delivery of an integrated and sustainable waste-management system:

➔ Clearly define the future role of the WSAG
➔ Take forward specific actions from the AWP
➔ Monitor the implementation of the AWP
➔ Fund the AWP
➔ Link the AWP to the development planning system.

5.1 Future Role of WSAG

The WSAG and local Waste Producers and Waste Industry Fora will be maintained as the focal point for the development of the AWP. The partnerships developed in these groups provide a long-term development resource and a way of developing expertise on a wide range of issues relating to the development of the National Waste Strategy: Scotland.

Waste Strategy Area Co-ordinators will:
➔ provide ongoing facilitation and co-ordination to ensure that the range of national projects related to the National Waste Strategy are integrated into the AWP
➔ be responsible for co-ordinating the WSAG
➔ report on the annual progress of AWP development.

Each WSAG member has a responsibility both individually and collectively to play their part in implementing the plan. Future tasks for the Group include:
➔ Implementation of AWP BPEO
➔ Implementation of actions in AWP
➔ Monitoring and review implementation of the AWP
➔ Monitoring and assist with preparation of bids to the Scottish Executive’s Strategic Waste Fund
➔ Monitor and provide guidance, if required, on development applications for significant waste-management infrastructure
➔ Support the continuation of local fora to ensure future development of the AWP
➔ Formation of a parallel group, to address commercial and Industrial wastes.

The WSAG must have both the expertise and authority to deliver on the agreed Actions. To ensure this is possible the following action must be investigated as a matter or priority.

Action 17
Aims and objectives of future phases of AWP to be identified and group set-up and roles to be determined.
5.2 Future Role and Membership of WSAG and Local Fora

The ADG WSAG and associated local fora will be maintained as the focal point for the development of the Ayrshire, Dumfries and Galloway AWP. In this way we can ensure that the ADG AWP makes good progress. The partnerships developed in this group and associated for a provide a long-term development resource and a way of embedding expertise on a wide range of issues relating to the development of the National Waste Strategy: Scotland. An ADG Waste Strategy Area Co-ordinator will also be maintained by SEPA to provide ongoing facilitation and co-ordination and to ensure that the range of national projects identified in the National Waste Plan are integrated into the AWPs. Waste Strategy Area Co-ordinators will be responsible for co-ordinating the WSAG and for reporting on the annual progress of AWP development. Other partners also have significant roles to fulfil.

The process of engaging Stakeholders has brought great benefits to the development of the AWP. Stakeholders believe that this momentum should not now be dissipated but opportunities given for further Stakeholder involvement.

Action 18
WSAG to develop a structure to liaise with, and involve, stakeholders in the implementation, monitoring and review of the AWP.

5.3 Action Plan

The actions stated throughout this plan are reproduced in Annex 2. They are presented in a format that provides further detail on the objective of each action and how they will be delivered and measured. This framework provides a consistent and transparent format for monitoring and reporting on progress.

5.4 Funding the AWP

Funding of the necessary investment for new waste-management infrastructure and operations may be obtained in a number of different ways, including private finance, through a PPP or PFI arrangement (refer to Annex 3), or traditional direct funding by the local authority. The Scottish Executive has established the Strategic Waste Fund (SWF) to allow specific grants to be paid to local authorities to assist with additional costs to meet the requirements of the AWP (refer to SWF Guidance available from the Scottish Executive, contact details in Annex 5). Additional funding may also be available in some cases from other sources, e.g. landfill tax credits, New Opportunities Fund ‘Transforming Waste’, EU structural funds and the sale of packaging waste recovery notes (PRNs).

Further information is available on the web site: http://www.sepa.org.uk/nws/funding/index.htm

The cost of implementing the BPEO identified in this plan is far in excess of current local authority waste-management budget expenditure. The Scottish Executive’s Strategic Waste Fund, worth £230 million over the financial years 2003-2004, 2004-2005, 2005-2006, to assist the implementation of the AWPs. Despite this new funding, it is clear that this will be insufficient to implement each element of the AWPs.

Table 5.1 - Projected Available Strategic Waste Funding

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</table>

Source: Scottish Executive Environment Department
There is an expectation that much of the required infrastructure will be brought forward by the private waste-management industry. In order to achieve this, the private sector will have to be confident that they can re-coup this investment through waste-management contracts with waste producers, in this case local authorities.

One of the aims of the AWP is to establish what facilities are required and the quantities of waste available to provide private sector financiers with the confidence to invest. An additional mechanism to encourage investment by the private sector is the Waste Management/Recycling PFI Project. This mechanism enables local authorities to engage the private sector in large-scale capital investment projects that would normally be beyond the resources available to local authorities. It is expected that the Waste Management/Recycling PFI Project will play an important part in financing implementation of the BPEO.

5.5 Monitoring Progress and Performance

Monitoring and review of performance is an essential part of the implementation process. This will determine if the actions within the plan are being achieved and if waste is being moved up the waste hierarchy in accordance with the principles of the NWSS. Local indicators will also contribute towards national indicators, giving an overall view of the management of waste in Scotland.

Action 19
Future monitoring requirements to be determined.

Each WSAG will be responsible for developing some form of annual progress report and forward development plan. The annual AWP progress reports will be provided to the Scottish Executive with a summary of the annual forward development plan. This will ensure that the Executive are aware of progress and are kept abreast of key issues that will need to be addressed.

The AWP will have a 5-year life and will be formally reviewed during 2006. The purpose of these regular reviews will be to revisit the BPEO in line with future social, economic, technological and legislative developments. The evolution of the BPEO is an integral part of the Area Waste Planning process, which will lead to the continued improvement in the way in which waste is managed.

An annual AWP progress report will be provided to the Scottish Executive and made available on the SEPA web site. This will summarise progress made and future plans.

5.5.1 National Targets and Indicators

Given that the BPEO process was a rigorous and consensual process it is proposed that the aggregated figures from the AWPs should form the basis for national recycling and recovery targets for MSW. It is also proposed that the targets post 2010 should be reviewed in line with revised AWPs. This would take into account the progress made in achieving the 2010 landfill directive target and issues such as the future adoption of new technologies and application of legislation.

5.5.2 Local Targets and Indicators

It is proposed that the national targets be applied on waste strategy area level in accordance with those set out in the AWP. This will result in different local targets for each area depending upon the approach undertaken in the BPEO.

Indicators are essential for the successful monitoring of progress in implementing the AWP. In addition, a consistent set of local indicators will allow for the aggregation of data to give a national overview. The proposed indicators will contribute towards the National Monitoring Framework along with identified sources of information that can be utilised to gather the data. The proposed local indicators are shown below in Table 5.2.
## Table 5.2 - Local Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Relevance</th>
<th>Measure</th>
<th>Information Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste production</td>
<td>Waste levels must be known for effective forward planning (disposal and treated wastes)</td>
<td>Waste arisings in thousands of tonnes, and categorised as per the requirements of the Waste Data Strategy</td>
<td>SEPA: Local Authority Waste Arising Survey, Industry Trend Survey</td>
</tr>
<tr>
<td>Treatment of MSW</td>
<td>Monitor waste treatment against indicative levels set out in National Waste Plan and AWPs</td>
<td>Tonnage of MSW (expressed as a percentage of total tonnage) treated by: → Recycling → Composting → Mixed-waste processing → EFW → Landfilling</td>
<td>SEPA: Local Authority Waste Arising Survey Community Recycling Group</td>
</tr>
<tr>
<td>Treatment of non-MSW</td>
<td>Monitor waste treatment against baseline levels established as part of the non-MSW technical assessment groups</td>
<td>Tonnage of non-MSW (expressed as a percentage of total tonnage) treated by: → Recycling → Composting → EFW → Landfilling</td>
<td>SEPA: Industry trend Surveys Private Waste Management Co’s</td>
</tr>
<tr>
<td>Collection of MSW</td>
<td>Monitor public access to recycling collection services</td>
<td>Percentage of MSW collected from: Segregated kerbside collection Survival bag collection Number of Bring Recycling sites per 1000 households Percentage of households with segregated collections</td>
<td>SEPA: Local Authority Waste Arising Survey, Local Authorities, Community Recycling Group</td>
</tr>
<tr>
<td>Landfilling of BMW</td>
<td>Monitor compliance with Landfill Directive. Note: this indicator can be derived from treatment of MSW indicator</td>
<td>Thousands of tonnes of BMW expressed as a percentage of BMW produced in 1995</td>
<td>SEPA: Local Authority Waste Arising Survey</td>
</tr>
<tr>
<td>Waste prevention</td>
<td>Stabilisation and reduction of waste growth is essential for successful resource management and to prevent further environmental degradation</td>
<td>Production of MSW per household per year (further guidance on how to measure prevention will be produced by the Waste Prevention Working Group: SEPA)</td>
<td>SEPA: Local Authority Waste Arising Survey, Local Authorities: No of households</td>
</tr>
<tr>
<td>Public awareness</td>
<td>Determine effectiveness of environmental awareness campaigns</td>
<td>Shifts in public behaviour: % aware of and actually participating in recycling and waste prevention</td>
<td>Waste Aware Campaign Surveys, SWAG Baseline surveys</td>
</tr>
<tr>
<td>Employment in the waste-management sector</td>
<td>The traditional waste-management sector has diversified to include community groups and social inclusion programmes. The total size of the sector is not known.</td>
<td>Number of employees including environmental taskforce placements within the waste-management sector</td>
<td>Local Enterprise Companies, SEPA, Local authorities, Community Recycling Groups</td>
</tr>
</tbody>
</table>
5.6 Development Planning

The development planning system is Scotland has an important role to play in the effective delivery of the ADG AWP. This relates both to facilitating the infrastructure required to deliver the MSW BPEO, but also in encouraging more sustainable forms of development. These aims must be balanced to ensure that amenity value, natural and built environments are also protected and enhanced.

Context for Development Planning

It is clear that given the scale of the task in meeting landfill diversion targets, that a significant level of new infrastructure will be required in the coming years.

It is expected that the following publications will assist land use planners with consistency and clarity when considering development applications and formulating development plan policies for waste-management proposals in Scotland.

➔ NPPG 10, Planning and Waste Management
➔ PAN 63 Waste-management Planning
➔ The AWP.

NPPG 10 Planning and Waste Management

NPPG 10 clearly sets out the role and responsibility of planning authorities in developing policy and identifying sites for waste-management facilities. ‘Planning authorities have a duty to provide policies for suitable waste disposal sites or installations in order to supply the land necessary for waste treatment and disposal to take place.’ (National Planning Policy Guideline No 10 – Planning and Waste Management, pg 6, para 2).

Paragraph 99 of NPPG 10 also clearly states the need for development plans to identify sites consistent with the National Waste Strategy. Recent discussion with the Scottish Executive re-emphasised that specific sites for waste-management facilities should be identified in Development Plans as appropriate; with more problematic infrastructure such as landfills and Energy from Waste facilities being considered in terms of appropriate areas of research.

It is likely that the Scottish Executive will be writing to Planning Authorities requesting them to update their Development Plans in light of the infrastructure requirements identified in finalised AWPs.

PAN 63 Good Practice in Waste-management Planning

To enable dissemination of best practice advice and encourage a more proactive approach to waste-management policy in development plans, the Scottish Executive published Planning Advice Note 63 (PAN 63) on good practice in waste-management planning. PAN 63 was jointly developed by the Scottish Executive, SEPA and representatives from waste industry, local authorities, planners and environmental groups.


The AWP

The AWP is a material consideration in the land-use planning system. For the waste streams covered, the AWP provides a clear framework for the development of waste-management facilities to meet landfill diversion targets. AWPs provide indicative infrastructure requirements to be incorporated into development plan policy as soon as is practicable.
**Need for Positive Planning**

The local authorities represented on the WSAG are the land use planning authorities for the area and recognise that statutory Development Plans need to be integrated to reflect the land use and policy requirements of the AWP.

The planning system has the responsibility to plan positively for the necessary waste-management infrastructure needed to implement the AWP. Furthermore, land-use planning authorities also have a responsibility to ensure that development applications that are not in accordance with the AWP BPEO decision, are fully assessed to ensure they do not compromise the objectives of the AWP.

The Scottish Executive has stated that AWPs are a material consideration for the land-use planning system. As far as is practicable, the AWP provides a clear framework for the development of waste-management facilities to meet landfill diversion targets. AWP indicative infrastructure requirements should, where possible, be incorporated into development plan policy as soon as possible.

The WSAG note that to do this local Plans will either require to be formally altered or the work required be built into the preparation process. Formal alteration of local Plans as well as the more normal preparation route requires full public consultation and normally a public local inquiry. For the public consultation to be effective an environmental impact assessment of the various options will be required with a clear justification for the chosen location.

As Planning Authorities, WSAG members can also develop policies to make sure that new development minimise the generation of waste and that necessary infrastructure (e.g. recycling points) are built into the design process for large scale housing and commercial development.

**Joint Working**

Where possible, WSAG members should work together to consider the need for waste-management facilities on a regional basis. This could be most easily achieved by co-ordinating reviews of existing development plan policy coverage.

**Technical Support**

SEPA has agreed to provide expert technical assistance to planning authorities in defining the technologies that accord with the MSW BPEO decision (and future BPEO decisions). This may take the form of commenting on the degree to which planning applications accord with the AWP, reviewing life-cycle assessment models where necessary and offering to appear as expert witnesses at public inquiries if required. Further assistance in the interpretation of the Landfill Directive and calculation of remaining landfill capacities, including the provision of waste data, will also be provided if required. It should be noted that this assistance to planning authorities is dependent on SEPA having suitable resources available at the time of any such request.

**5.7 Linking to the National Plan**

The AWPs describe the activities, key infrastructure needs and targets for each of the 11 Waste Strategy Areas in Scotland. The National Waste Plan for Scotland (NWP) presents the aggregation of these 11 AWPs and describes the necessary activities to ensure that waste arising in Scotland is managed in a sustainable manner. The National Waste Plan also sets out how Scotland will achieve the objectives in the Landfill Directive. The future development of both the National Waste Plan and AWPs are linked with actions being undertaken at both an area level and where appropriate at a national level. Together they provide the development programme to take forward the National Waste Strategy: Scotland at both a national and an area level.
Annex 1 - Glossary

**Aerobic** A process taking place in the presence of air.

**Anaerobic** A process taking place in the absence of air.

**Anaerobic digestion** The anaerobic decomposition of biodegradable waste, by the action of micro-organisms under controlled conditions, in order to produce methane in the form of biogas and, as residue, a fiber fraction (digestate) and a liquid fraction (liquor).

**Avoidance** Strict Avoidance involves the complete prevention of waste generation by virtual elimination of hazardous substances or by reducing material or energy intensity in production, consumption and distribution, as defined by Organisation for Economic Co-operation and Development – Strategic Waste Prevention 2000. See Waste Prevention.

**Best Value** Places a duty on local authorities to deliver services (including waste collection and waste disposal management) to clear standards - covering both cost and quality - by the most effective, economic and efficient means available.

**Biological treatment** The stabilisation of residual municipal waste, unsorted waste or any other biodegradable waste in order to reduce the fermentability and volume of the waste.

**Central composting** Large-scale schemes that process biodegradable material from the surrounding area in a centralised location.

**Commercial waste** Waste arising from premises which are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding household and industrial waste. (As defined in Environmental Protection Act 1990 Section 75)

**Community sector** Including charities, campaign organisations and not-for-profit companies.

**Composting** The controlled biological decomposition and stabilisation of biodegradable materials (such as organic garden and kitchen wastes) under predominantly aerobic (oxygen-rich) conditions to produce a humus rich, sanitised and stabilised product that can be beneficial to soil.

**Controlled waste** Household, industrial and commercial waste or any such wastes that require a waste management licence for treatment, transfer or disposal (As defined by Environmental Protection Act 1990 Section 75).

**EC Directive** A European Community legal instruction which is binding on all Member States and must be implemented through the legislation of Member State governments within a prescribed timescale.

**Energy from waste** The recovery of energy value from waste by burning the waste directly, or by burning a fuel produced from the waste, such as refuse-derived fuel (gaseous or solid) or landfill gas.

**Gasification** Heating waste in a low-oxygen atmosphere at temperatures typically of 800 - 1400°C to give off a fuel gas. This technology was used to produce gas from coal, although it is relatively new process in its application to waste treatment.

**Green waste** 'Green and wood waste' means vegetable waste from gardens and parks, tree cuttings, branches, grass, leaves (with the exception of street sweepings), sawdust, woodchips and other wood waste not treated with heavy metals or organic compounds.

**Home composting** Compost can be made at home using a traditional compost heap, a purpose designed container or a wormery.
**Household waste** Waste from domestic properties including waste from caravans, residential homes and premises forming part of an educational establishment and part of a hospital or nursing home.

**Incineration** A combustion treatment process involving waste. This includes the incineration by thermal oxidation of wastes. The EU Directive on Incineration defines other processes such as gasification and pyrolysis as incineration in as far as the substances resulting from the treatment are subsequently incinerated.

**Industrial waste** Waste from a factory (within the meaning of the Factories Act 1961) or from any premises used for or in connection with:
- Provision of public transport
- Public supply of gas, water, electricity or sewerage services
- Provision to the public of postal or communication services

**Inert waste** ‘Waste that does not undergo any significant physical, chemical or biological transformations’ as defined by the EU Landfill Directive (99/31/EEC).

**Integrated waste management** Involves a number of key elements, including: recognising each step in the waste management process as part of a whole; involving all key players in the decision-making process; and utilising a mixture of waste management options within the locally determined sustainable waste management system.

**In-Vessel composting** The composting of biodegradable material in a closed reactor where the composting process is accelerated by optimising air exchange, water content and temperature control.

**Kerbside segregated collection** Any regular collection of recyclables or compostable materials from premises. Excludes collection services delivered on demand.

**Land use planning** The Town and Country Planning system regulates development and use of land in the public interest and has an important role to play in achieving sustainable waste management.

**Landfill Directive** A key European Directive agreed in April 1999, aims to prevent or reduce as far as possible the negative effects of landfilling on the environment and human health. The main requirements of the directive include treatment of most wastes before landfilling them; banning the co-disposal of hazardous and non-hazardous waste; banning certain wastes from landfill completely; and targets for the reduction of biodegradable municipal waste to landfill.

**Landfill sites** Areas of land in or on which waste is deposited.

**Materials recovery facility (MRF)** A facility to process wastes for the purpose of recovering useful materials using a variety of processes to separate out different materials, ranging from manual sorting to advanced mechanical separation techniques.

**Mixed waste processing facility** Any facility using one or more mechanical, biological or thermal processes to extract more than one useful product (recyclables and/or compost and/or fuel or energy and/or other recovered materials) from a mixed wastes stream. This covers a range of existing and emerging technologies, many of which are capable of treating either mixed waste (before or after source separation) or source segregated materials, thus offering flexibility.

**Packaging waste** Comprises waste arising from “all products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer....”

**Pyrolysis** In this treatment, organic waste is heated in the absence of air at temperatures typically of 400–800°C. This produces a predominantly gaseous fuel product, occasionally some liquid fuel and a solid inert residue (mainly carbon). Pyrolysis can take different waste streams but generally requires a consistent feedstock. Pyrolysis does enable energy to be recovered from the waste.
Recovery Generating value from wastes from a wide variety of activities such as recycling, composting and energy recovery.

Recyclables Materials that are capable of being recycled.

Recycling Using waste materials in manufacturing other products of an identical or similar nature, as defined by Organisation for Economic Co-operation and Development – Strategic Waste Prevention 2000.

Reduction at Source Minimising use of toxic or harmful substances and/or minimising material or energy consumption, as defined by Organisation for Economic Co-operation and Development – Strategic Waste Prevention 2000. See Waste Prevention.

Refuse Derived Fuel A solid, liquid or gaseous fuel derived from waste which typically will be used as a fuel product on site or by a third party user.

Reuse Involves the multiple use of a product in its original form, for its original purpose or for an alternative, with or without reconditioning, as defined by Organisation for Economic Co-operation and Development – Strategic Waste Prevention 2000. See Waste Prevention.

Source separation Separation of materials for recycling or composting (e.g. paper, cans, glass, textiles, garden waste, household organics, plastic, steel, etc.) at the point of origin. The separation either takes place within the household (or business/institution) through the use of different containers, or parts of containers, for individual materials, or at street level when materials are sorted into the collection vehicle.

Sustainable development Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. This definition can be extended to address waste and resources, i.e. development that recognises the need to limit the use of resources and production of waste to levels which do not damage the ability of natural ecosystems to remain stable and healthy. This will involve efficient use of resources including the reuse and recovery of wastes and a move from resources whose supply is finite to renewable.

Thermal treatment A broad generic term covering processes that involve the use of heat to treat waste. Incineration is the most common thermal treatment process. Pyrolysis and gasification are other high temperature processes but there are also low temperature processes used, for example, in technologies producing refuse derived fuel.

Waste Any substance or object in the categories set out in Annex 1 of the Waste Framework directive (91/156/EEC), which the holder discards or intends or is required to discard.

Waste arisings The amount of waste generated in a given locality over a given period of time.

Waste hierarchy Seeks to capture the desirability of different waste management options in descending order of preference, from Avoidance, Reduction and re-using waste, through recycling and composting, energy recovery and finally disposal. The concept is meant as a guide to thinking rather than a rigid rulebook.

Waste minimisation Preventing and/or reducing the generation of waste at the source: improving the quality of waste generated, such as reducing the hazard, and encouraging reuse, recycling and recovery, as defined by Organisation for Economic Co-operation and Development – Strategic Waste Prevention 2000.

Waste prevention Includes in descending order of preference: Strict Avoidance, Reduction at Source and Product Reuse, as defined by Organisation for Economic Co-operation and Development – Strategic Waste Prevention 2000. These terms are defined under the relevant headings.

Waste transfer station A site to which waste is delivered for sorting and/or bulking prior to transfer to another place for recycling, treatment or disposal.

Windrow composting An open-air method of composting in which biodegradable materials are placed in long piles, which are turned periodically to aid the composting process. The term originates from the farming practice of piling hay in rows so that it will dry out in the wind.
Annex 2 - SMART Action Plan

Interpreting the SMART Action Matrix
This framework has been developed to set out the actions and targets in a consistent format for all AWPs. This matrix will also form the basis of the annual reporting format on the actions proposed in each Plan.

<table>
<thead>
<tr>
<th>Action Requirement - 1</th>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BPEO position</td>
<td>Contract Specification</td>
<td>Ongoing</td>
<td>LAs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Requirement - 2</th>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identify waste streams, origins and quantities</td>
<td>Data Report</td>
<td>2002-06</td>
<td>SEPA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Requirement - 3</th>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reduction of Waste</td>
<td>Waste Minimisation Programmes</td>
<td>2003-06</td>
<td>SEPA, LAs, SE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Requirement - 4</th>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Development of next phases of AWP</td>
<td>Establishment of specific groups with timetable to work to.</td>
<td>2003-06</td>
<td>SEPA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Action Requirement - 5</th>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Development of next phases of AWP</td>
<td>Establishment of specific groups with timetable to work to.</td>
<td></td>
<td>LAs</td>
</tr>
</tbody>
</table>
### Action Requirement – 6
WSAG to target stakeholder involvement for specific promotion and education objectives.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recycling targets, composting targets, l/f targets</td>
<td>Delivery of targets</td>
<td>2002-2020</td>
<td>LAs</td>
</tr>
</tbody>
</table>

### Action Requirement – 7
WSAG to lobby for introduction of statutory recording of non-MSW arisings to enable these waste streams to be adequately planned for in the future.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirement for data recording</td>
<td>Statute</td>
<td>2003-04</td>
<td>LAs, SEPA</td>
</tr>
</tbody>
</table>

### Action Requirement – 8
In conjunction with SEPA’s Data Strategy, the Waste Strategy Area Co-ordinators will instigate appropriate data collection studies to inform future developments for commercial and industrial waste management.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery of waste specific data</td>
<td>Delivery in annual data reports</td>
<td>2003-06</td>
<td>SEPA</td>
</tr>
</tbody>
</table>

### Action Requirement – 9
WSAG to develop reuse programmes and events targeting stakeholder involvement for specific objectives.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of next phases of AWP</td>
<td>Establishment of specific groups with timetable to work to</td>
<td>2003-10</td>
<td>SEPA, LAs</td>
</tr>
</tbody>
</table>

### Action Requirement – 10
WSAG to develop recycling and composting programmes and events targeting stakeholder involvement for specific objectives.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimising composting outputs</td>
<td>Delivery of diversion targets and delivery of composting targets</td>
<td>2003-10</td>
<td>SEPA, LAs</td>
</tr>
</tbody>
</table>

### Action Requirement – 11
WSAG to monitor the AWP implementation in achieving the composting and recycling targets identified to meet landfill diversion.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversion Monitoring Programme</td>
<td>%Composting, %Recycling</td>
<td>2003-04</td>
<td>LAs</td>
</tr>
</tbody>
</table>
### Action Requirement - 12
Current home composting initiatives to be encouraged as a means of gaining willing participation and possibly reducing the waste to be managed.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific education programme and delivery of support system</td>
<td>% homes participating</td>
<td>2003-2010</td>
<td>LAs</td>
</tr>
</tbody>
</table>

### Action Requirement - 13
Once SEPA has undertaken the above (Action 8) data collection studies to inform future developments for commercial and industrial waste management, the WSAG will consider how to implement.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery of performance indicators</td>
<td>Identification in monitoring and review system</td>
<td>2006-10</td>
<td>LAs</td>
</tr>
</tbody>
</table>

### Action Requirement - 14
WSAG required to investigate availability or reprocessors, markets and end users for recycled and composted materials within the Waste Strategy Area.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery of optimised recycling and composting</td>
<td>Performance indicators, recycling targets</td>
<td>2003-06</td>
<td>SEPA, LAs, SE</td>
</tr>
</tbody>
</table>

### Action Requirement - 15
WSAG members to examine existing standards and specification for materials to enable, where appropriate, local recyclates and compost to be used locally.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery of optimised recycling and composting</td>
<td>Performance indicators, recycling targets, tonnage of material used locally</td>
<td>2003-2015</td>
<td>LAs, SE</td>
</tr>
</tbody>
</table>

### Action Requirement - 16
Recycling education and awareness raising programme to be undertaken to ensure that the targets are achieved where source segregation is required.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>% participation in source segregation</td>
<td>Education/information programmes</td>
<td>Ongoing</td>
<td>LAs (locally) SEPA (nationally)</td>
</tr>
</tbody>
</table>
### Action Requirement – 17
Aims and objectives of future phases of AWP to be identified and group set-up and roles to be determined.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rolling out next phasing of AWP</td>
<td>Delivery of timetable for next phases of AWP. National review of AWP in process.</td>
<td>2002-2004</td>
<td>SEPA</td>
</tr>
</tbody>
</table>

### Action Requirement – 18
WSAG to develop a structure to liaise with, and involve, stakeholders in the implementation, monitoring and review of the AWP.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>To ensure that the benefits that flow from stakeholder engagement continue into the implementation, monitoring and review of the AWP</td>
<td>Monitored through annual AWP review</td>
<td>2002 - 2004</td>
<td>WSAG</td>
</tr>
</tbody>
</table>

### Action Requirement – 19
Future monitoring requirements to be determined.

<table>
<thead>
<tr>
<th>Target/Objective</th>
<th>Indicator/Measure</th>
<th>Timescale</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting out of specific monitoring requirements in annual AWP review</td>
<td>Delivery within AWP report</td>
<td>2002 - 2007</td>
<td>SEPA, LAs</td>
</tr>
</tbody>
</table>
Annex 3 - Links to Other Policies, Legislation and Initiatives

The AWPs are being developed in an environment where other areas of policy development, legislation and initiatives are likely to influence, or be influenced by, the National Waste Plan. During its implementation the National Waste Strategy: Scotland seeks to integrate its activities with the policies, legislation and initiatives described in the following sections. These fall under three categories, namely:

1. Waste-management-related Policies, Legislation and Initiatives
2. General Policies, Legislation and Initiatives – of direct relevance to waste management
3. Other Policies, Legislation and Initiatives – of indirect relevance to waste management.

1 Waste-management-related Policies, Legislation and Initiatives

**Awareness, Education and Cultural Change Programme**

The Waste Aware Scotland Team (WASTE) was established by SEPA to create a more positive waste culture in Scotland, using a waste education and awareness programme based on best practice from Scotland and around the world. Its specific aims are to establish a strategic framework for education and awareness initiatives in support of the National Waste Strategy: Scotland and where appropriate to support, facilitate and assist in the implementation of these education and awareness initiatives. The team is chaired by a representative from SEPA and draws its members from local authorities, commerce and industry, the waste-management industry and consumer interests.

The process focus of the team will be on formal education, informal learning, professional education and training, public campaigns and information or advice services. The strategic behavioural and cultural change objectives of WASTE will be achieved through a number of initiatives which will address all wastes including household, commercial and industrial. Initiatives already underway include the Scottish Waste Awareness Group (SWAG), which will plan and deliver a series of public awareness campaigns across Scotland as part of their Waste Aware Scotland programme to change public attitudes towards reduction, reuse and recycling.

Working closely with SEPA and WASTE, SWAG is a resource for local authorities and the National Waste Strategy: Scotland to deliver local and national campaigns to the public through the WSAGs. SWAG has cross sector support from SEPA, local authorities, NGOs, recycling groups, consumer interests, private waste industry, Keep Scotland Beautiful, the media and the Scottish Executive, in particular their ‘Do a Little Change a Lot’ campaign.

**SEPA’s Regulatory Policy**

SEPA’s Regulatory Policy is aimed at meeting Objective 1 of Schedule 12 of the Environment Act 1995 and ensuring that waste is recovered or disposed of without endangering human health and without using processes or methods that could harm the environment. SEPA’s Regulatory Policy therefore recognises the importance of ensuring that its regulatory functions are in line with the objectives of the National Waste Strategy process, and equally, that the AWPs are realistic concerning the contribution that regulation can make. There is also a need to ensure that each plan addresses forthcoming regulatory issues sufficiently. A full statement of SEPA’s Regulatory Policies will be prepared for inclusion in the National Plan.
SEPA Waste Minimisation Programme

SEPA’s Waste Minimisation Programme was launched in 1998 and became a permanent function in 2001. The overall aim is to demonstrate the benefits of waste minimisation to SEPA staff, commerce and industry. The programme works in partnership with external organisations to increase the amount of waste-minimisation activity in Scotland by developing sector-based or geographical projects and links to SEPA’s own internal environmental policy and the National Waste Strategy Scotland. It also contributes to the promotion of domestic waste minimisation to householders through working alongside the Scottish Waste Awareness Group.

To date SEPA has helped over 500 companies to reduce their waste through low cost measures through the external partnership network. This now equates to an across-the-board cost saving amongst Scottish Businesses of at least £6 million through reductions in water use and emissions to land and air.

The programme seeks to provide a focal point for the dissemination of best practice in waste minimisation. A website (www.sepa.org.uk/wastemin) contains useful information on the benefits of waste minimisation, how to establish a waste minimisation programme, useful contacts and sources of help and listing of all the initiatives throughout Scotland. A practical video and leaflet is also available free of charge.

2 General Policies, Legislation and Initiatives
(of direct relevance to waste management)

Best Value

A duty of Best Value has been introduced to Scottish local government through the Local Government in Scotland Bill (introduced on 16 May 2002). Best Value means that local authorities will have to secure continuous improvement in the performance of all their functions. This improvement should be achieved while maintaining an appropriate balance between the quality of service delivered and cost of delivering the service. The intention is to embed a culture of quality and improvement in local government service delivery. Best Value is intended to focus local authorities on outcomes as well as the process, which may force them to ask themselves difficult questions – how should a service be delivered? How well do we deliver it? How well could others do it? How do we compare to others? This process requires a commitment to ongoing review and that an effective dialogue between local authorities, their staff and service users be created and maintained.

Whilst Best Value is a principle that can be applied widely across public sector services there are specific objectives in its application to waste management. These include aspects of collection, treatment and disposal of waste. The final structure and the necessary legislation for its application in Scotland are awaited. The services developed by local authorities as a result of the AWPs will be developed and managed as part of the Best Value regime.

Contaminated Land Issues

AWPs will address the management of contaminated soil arisings as part of the strategy for the management of non-MSWs. The majority of contaminated land issues will be addressed either through the Planning and Development Control procedures, Part IIA of the EPA 1990 (local authorities), or the Control of Pollution Act 1974 (enforced by SEPA).

Development Planning

The planning system guides the future development and use of land in the long-term public interest. The aim is to ensure that development and changes in land-use occur in suitable locations and are sustainable. The statutory development plan for an area consists of the structure and local plan:

➔ The structure plan provides a long-term vision as part of an overview of an area’s development requirements. It should identify the overall supply of land to meet the requirements of development and reflect and identify the priorities for the provision of infrastructure.

➔ Local plans set out the detailed policies and specific proposals for development and the use of land that guide day-to-day planning decisions.

➔ Additionally, where applicable, any development proposals or waste-management proposals will need to take account of the planning framework prepared for each National Park, namely a National Park Plan and a local plan or plans, as required by the National Parks (Scotland) Act 2000. The National Park Plan will set the overall strategic vision and management context within which the local plans will set out detailed policies and proposals for the development and use of land within a National Park.
Local Agenda 21 and Environmental Strategies

Whilst these plans are non-statutory, many local authorities will produce one or both. Local Agenda 21 strategies (LA21) arose out of the 1992 Rio Earth Summit and can be thought of as local plans for sustainable development. The government challenged all authorities to produce such a statement by December 2000. Community plans and LA21s are very similar in nature. Thus many LA21 strategies have been combined with community plans or are seen as complementary processes. However LA21 plans tend to be longer term, more global-to-local in approach and more radical than community plans.

Since the World Summit on Sustainable Development (WSSD) fresh impetus has been given to the LA21 process, which is now been termed ‘Local Action 21’ with a renewed focus on action.

Environmental strategies simply draw together local authority actions on environmental issues, from transport to purchasing, from waste management to environmental education and subsequently the AWPs form a key component of the local authorities sustainable development strategy.

Local Government Bill

The forthcoming Local Government Bill aims to provide a framework for the delivery of better, more responsive public services, giving councils more flexibility and responsibility to act within a sensible framework and to work in partnership with communities and other agencies.

The proposals fall into three main areas:

➔ Giving councils a general power to promote and improve the well-being of their area
➔ Providing a statutory underpinning for community planning through a duty on councils and key community planning partners
➔ Introducing a statutory duty of best value for local authorities.

The new powers will enable councils to act more flexibly and innovatively in promoting and improving the well-being of their area in partnership with communities and other agencies.

Councils will be required to facilitate a community planning process in their area and to consult and engage communities in that process. Other key public bodies, such as the NHS, local enterprise companies and police are under a statutory duty to participate in the community planning process. This is designed to promote more effective joint working between agencies in seeking to deliver the services people want. The emphasis should be on the needs of service users and the effective engagement of communities in the decisions that affect them.

A statutory duty of Best Value is to be placed on local authorities to pursue continuous improvement in performance in a way that maintains an appropriate balance between quality and cost.

The Bill will also be used as a vehicle for progressing a small number of miscellaneous provisions that relate to the role of local authorities, including a duty to prepare Integrated Waste-management plans to replace the current recycling plans. Integrated Waste-management Plans will include targets for individual local authorities to achieve as their contribution to their AWP and the National Waste Plan.

Public Private Partnership (PPP)

One aim of government policy is to promote constructive working partnerships between the public and private sectors.

Using private capital and expertise in the provision of public infrastructure is not new. Joint working between the public and private sectors, in fields such as housing, economic development and regeneration, transport and municipal enterprises, has achieved a great deal over the years. The government is keen to build on this success, by extending successful approaches to delivering good value for money, and by developing new ones and PPP is one route by which local authorities may procure and fund the long-term integrated waste management required to meet the AWP objectives.
Private Finance Initiative (PFI)

PPPs are about establishing arrangements, often using a legally binding contract that will bring benefits to both sectors. Such arrangements can include contractual relationships, management buy outs, externalisation of operational management and use of the Private Finance Initiative (PFI). The PFI is a mechanism for improving value for money in partnership with the private sector and is often applied to large capital projects such as roads, hospitals, schools and prisons. The PFI has also been applied to a range of waste-management facilities.

The costs of the various waste-management options for MSW highlighted elsewhere in the plan indicate that there may be a need to explore PPPs to deliver certain aspects of the infrastructure and services required. It will be for individual councils to decide on the form that these arrangements take. The Scottish Executive have made clear that to secure any funding from the Strategic Waste Fund, all projects must accord with the local AWP, irrespective of whether they are financed using PPP, PFI or other traditional methods of financing.

Renewables Obligation (Scotland)

The Scottish Executive has set out a policy on renewable energy, which aims to stimulate further the development of the renewable energy industry in Scotland. The Scottish Executive’s objective is that by 2010 18% of electricity supplied in Scotland should be renewable energy, in other words generated from a renewable resource. The policy has five key aims:

➔ To assist the UK to meet national and international targets for the reduction of emissions, including greenhouse gases
➔ To help provide secure, diverse, sustainable and competitive energy supplies
➔ To stimulate development of new technologies needed for growth of the contribution from renewables in the longer term
➔ To assist the UK renewables industry to become competitive in home and export markets and in doing so to provide employment
➔ To make a contribution to rural development.

In line with the objective and aims, Renewables Obligation (Scotland) (ROS) obliges all licensed electricity suppliers in Scotland to demonstrate that they have supplied a specified proportion of electricity from renewable sources. This specified proportion will increase each year to help achieve the objective of 18% of electricity supplied from renewable sources by 2010.

The key renewable energy technologies include wind and wave power, solar energy, biomass production and energy from waste. The specific approach that the ROS takes on energy from waste as a renewable energy source is as follows:

Electricity generation from waste treatment is eligible under two categories, providing minimal content of fossil-fuel-derived waste.

(a) Generation from biomass

Electricity that is generated directly from treatment of biomass is eligible under the order. Biomass, defined as above, must be verified to be contaminant free to at least 98% of its energy content as measured by monthly sampling.

(b) Mixed Waste generation

Electricity generation from mixed waste treatment is not directly eligible under the 2002 order. However, electricity that is generated from the liquid or gaseous product/s of an advanced conversion technology, where it is applied to mixed waste, is eligible under the order. The order defines an advanced conversion technology as ‘Gasification, pyrolysis or anaerobic digestion, or any combination thereof’.
Community Planning

This arose from the perception that public sector planning was fragmented and poorly co-ordinated at a local level, leading to duplication, waste and confusion. Hence since 1999, with councils taking a lead, organisations as diverse as Health Boards, LECs, Scottish Homes, SEPA, the police authority and Scottish Natural Heritage have come together to plan the future of the local area. These community plans are being finalised and should contain: a vision for the future of the area, an analysis of the main issues, an audit of current activities, an action plan for change, and a review mechanism. Community plans can cover strategic issues and also be subdivided to tackle very local issues such as traffic, noise, graffiti and green space. As such, community plans offer an important means to have policies endorsed by a very wide range of actors and stakeholders. The completed AWPs will provide useful input to local authority community plans.

Corporate Plans (Strategic Plans)

Most local authorities produce a corporate plan to cover either following year or 3 years. These are key documents as they translate the manifestos of the parties into policies and set out commitments on emerging government initiatives. Corporate plans usually present an analysis of the council position (with respect to demographics, economy, social issues, environmental issues, etc.) and the key policies and actions it intends to undertake. It may also contain an explanation of the internal processes of the council that are intended to implement the corporate plan. It is likely that local authority corporate plans will make reference to the agreed AWP.

Economic Development Strategies

Most local authorities have economic development teams and will therefore produce strategies and action plans setting out what these teams intend to achieve. This will often be in addition to any Local Enterprise Company (LEC) Economic Development Strategy they are supporting. Typical issues covered include company support, trade development, company development, training and New Deal programmes, physical enhancement, infrastructure improvements, tourism, links to social inclusion work, and in some cases environmental issues. The completed AWPs, as agreed, may be used to inform the development of local authority economic development strategies.

Education Department Plans

A wide variety of plans are required in Education Departments, including curriculum development plans and school development plans. A recent innovation is the need to produce Community Learning Strategies and Community Learning plans to support the new Community Plans. Community learning seeks to involve the Community Education function and other key learning institutions in meeting key learning needs arising from other strategies. For example, the economic development strategy might identify a need for greater IT skills, which the Community Learning Strategy might try to address. Some education departments may also have environmental education plans. AWPs typically have a significant public education and awareness component and the implementation of this may influence the development of local Community Learning Plans.

Housing Plans and Housing Management Plans

These are statements by Housing Department of the range and type of housing required for their area over a 3 or 5 year period, and the investment required to meet that need. Housing types cover both standard (council) housing and special needs housing. Housing Management Plans cover the service provided by the local authority: repairs and maintenance, estate management, tenant participation, etc. Housing Management Plans may influence the nature of any future changes to the current household waste collection systems, required by the AWP.
Local Air-Quality Plans
The Environment Act 1995 requires local authorities to review their area and determine possible breaches that may occur to the National Air Quality strategy objectives for key pollutants. Local authorities that identify areas likely to breach these standards must produce a strategy to return the area to compliance, using mechanisms such as controls on development, low emission zones, traffic restrictions, etc. Future waste-management facilities and arrangements proposed by the completed AWPs may have an impact on local air quality and the AWP proposals should be taken into account as part of the local air-quality plans.

Local Biodiversity Action Plans
Another plan to arise from the 1992 Rio Earth Summit, these plans seek to implement at a local level the UK government’s national Biodiversity Action Plans. Typically, a Local Biodiversity Action Plan (LBAP) will follow a defined process: an audit of existing flora, fauna and habitats, a prioritisation of these against key international, national and local criteria, followed by the development of action plans for the key species. Where they exist, LBAPs may inform the site location considerations for specific facilities required by the AWP.

Local Transport Strategies
Local transport strategies are designed to bring together all the transport issues for the local authority area. They combine the statutory requirements of the Road Traffic Reduction Act and Road Safety Plans with analysis of the existing pattern of transport and traffic. They usually include plans for new roads and road improvements, bus, cycling, walking and rail projects and are a useful source of transport statistics. They may, and should, be linked to local air quality and planning strategies. The completed AWPs may be used to inform the development of local transport strategies, particularly where new centralised waste processing facilities are planned.

Other Local authority Corporate Policies
Local authority Chief Executives or Corporate Services Departments typically produce a wide range of other policies. These cover plans for both urban regeneration, closely linked to social inclusion, and rural regeneration, sometimes called rural development. Typically these plans use ring-fenced government money, together with Structural Funds, to promote community social and economic programs such as training, community transport, credit unions, physical enhancements, etc. Elements of the agreed AWPs may be of relevance for inclusion in these corporate plans, where they impact regeneration and social inclusion.
Annex 4 – Associated Reports (with Web links)

Table 1 below summarises reports, which underpin or provide background to the ADG AWP.

### Annex 4. Table 1 – Associated Reports

<table>
<thead>
<tr>
<th>Report</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic Waste-management Baseline Assessment</td>
<td>Presents data and information on waste arisings and disposals, and the existing waste-management infrastructure with ADG.</td>
<td>Contact ADG Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>AWP Guidance</td>
<td>Describes the AWPning process.</td>
<td>SEPA web site at <a href="http://www.sepa.org.uk/nws">www.sepa.org.uk/nws</a> or contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>BPEO Guidance</td>
<td>Describes the process of determining the BPEO for waste streams</td>
<td>SEPA web site at <a href="http://www.sepa.org.uk/nws">www.sepa.org.uk/nws</a> or contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>ADG Draft AWP Plus: Technical Summary Plus: Information Booklet</td>
<td>The draft version of this plan which also contains more detail on the process of determining BPEO and formed the consultation element of the process.</td>
<td>SEPA web site at <a href="http://www.sepa.org.uk/nws">www.sepa.org.uk/nws</a> or contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>The National Plan for Scotland</td>
<td>Presents the national framework.</td>
<td>SEPA web site at <a href="http://www.sepa.org.uk/nws">www.sepa.org.uk/nws</a> or contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>ADG Strategy Area Consultation Report</td>
<td>Presents the results of the consultations in ADG on the AWP.</td>
<td>Contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>Modelling Data</td>
<td>WISARD models Cost models Technical yields BPEO Appraisal model use in the AWP, includes assumptions used.</td>
<td>Contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>Stakeholder Report</td>
<td>Independent assessment of BPEO for waste streams plus assessment, comments and suggestions on the formal proposals put forward by the WSAG for consultation</td>
<td>Contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
<tr>
<td>Consultation Response</td>
<td>Charts the key elements raised by the consultation, plus how they've been accounted for or plan to be accounted for.</td>
<td>Contact ADG Waste Strategy Area Coordinator at <a href="mailto:nws.adg@sepa.org.uk">nws.adg@sepa.org.uk</a> or on 01387 720502</td>
</tr>
</tbody>
</table>
Annex 5 - Contact Organisations and Links

**National Organisations**
For enquiries and information on the National Waste Strategy: Scotland:

- visit: [www.sepa.org.uk/nws](http://www.sepa.org.uk/nws)
- email: wasteaction@sepa.org.uk
- call the Waste Action information request line on: 0800 389 5270

**Scottish Environment Protection Agency (SEPA)**
Erskine Court
Castle Business Park
Stirling
FK9 4TR
Tel: 01786 457700
Fax: 01786 446885
[www.sepa.org.uk](http://www.sepa.org.uk)

**SEPA Waste Minimisation Project (WaMI)**
Clearwater House
Heriot Watt Research Park
Avenue North
Riccarton
Edinburgh
EH14 4AP
Tel: 0131 449 7296
Fax: 0131 449 7277
[www.sepa.org.uk/wastemin](http://www.sepa.org.uk/wastemin)

**Scottish Executive**
Waste Strategy Team
SEPA Sponsorship and Waste Unit
Area 1 - J (North) Victoria Quay
Edinburgh
EH6 6QO
Tel: 0131 244 0243
Fax: 0131 244 0245
[www.scotland.gov.uk](http://www.scotland.gov.uk)

**Convention of Scottish Local Authorities (CoSLA)**
Rosebery House
9 Haymarket Terrace
Edinburgh
EH12 5XZ
Tel: 0131 474 9200
Fax: 0131 474 9292

**Recycling Advisory Group Scotland (RAGS)**
233 Cowgate
Edinburgh
EH1 1NQ
Tel: 0131 226 6666
Fax: 0131 220 2263
ragsdesk@rags.org.uk
events@rags.org.uk

**Scottish Institute of Sustainable Technology Ltd (SiSTech)**
Heriot-Watt University
Riccarton
Edinburgh
EH14 4AS
Tel: 0131 4518162
Fax: 0131 4518150

**Scottish Waste Awareness Group (SWAG)**
7 Melville Terrace
Stirling
FK8 2ND
Tel: 01786 471333
[www.wascot.org.uk](http://www.wascot.org.uk)

**Waste and Resources Action Programme (WRAP)**
The Old Academy
21 Horse Fair
Banbury
Oxon
OX16 0AH
Tel: 0808 100 2040
Fax: 01295 819911
[www.wrap.org.uk](http://www.wrap.org.uk)

**Scottish and Northern Ireland Forum for Environmental Research (SNIFER)**
11/13 Cumberland Street
Edinburgh
EH3 6RT
Tel: 0131 557 2140
Fax: 0131 652 3615

**ReMaDe Scotland**
Caledonian Shanks Centre for Waste Management
Glasgow Caledonian University
3rd Floor Drummond House
1 Hill Street
Glasgow
G3 6RN
Tel: 0141 582 0450
Fax: 0141 582 0451
[www.remade.org.uk](http://www.remade.org.uk)

**Scottish Environmental Services Association (SESA) c/o Shanks**
A8 Edinburgh Road
Coatbridge
Lanarkshire
ML5 4UG
Shanks Switchboard
Tel: 01236 433671
martin.king@shanks.co.uk
Annex 6 - Summary of Local Authority Practices and Plans

Exec. Summ. Table 2 - Performance Indicators for Local Authorities and Combined Waste Strategy Area

<table>
<thead>
<tr>
<th>Performance Criteria</th>
<th>Dumfries &amp; Galloway Council</th>
<th>East Ayrshire Council</th>
<th>North Ayrshire Council</th>
<th>South Ayrshire Council</th>
<th>Combined WSA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>By 2010</td>
<td>By 2013</td>
<td>By 2020</td>
<td>By 2010</td>
<td>By 2013</td>
</tr>
<tr>
<td>*EC Diversion Target (as % BMSW)</td>
<td>57%</td>
<td>65%</td>
<td>65%</td>
<td>25%</td>
<td>50%</td>
</tr>
<tr>
<td>**EC Diversion Target (as % of total MSW)</td>
<td>34%</td>
<td>40%</td>
<td>40%</td>
<td>15%</td>
<td>30%</td>
</tr>
<tr>
<td>Recycling (dry recyclate)</td>
<td>14%</td>
<td>17%</td>
<td>20%</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Composting (and home composting)</td>
<td>12%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Total recycling</td>
<td>26%</td>
<td>32%</td>
<td>35%</td>
<td>35%</td>
<td>40%</td>
</tr>
<tr>
<td>MSW treatment ****</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
<td>65%</td>
<td>60%</td>
</tr>
<tr>
<td>Segregated collection (as % of households)</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
<td>80%</td>
<td>90%</td>
</tr>
<tr>
<td>Landfill</td>
<td>40%</td>
<td>28%</td>
<td>25%</td>
<td>65%</td>
<td>50%</td>
</tr>
<tr>
<td>Total waste diverted from landfill</td>
<td>60%</td>
<td>72%</td>
<td>75%</td>
<td>35%</td>
<td>50%</td>
</tr>
</tbody>
</table>

*The EC Diversion Targets for BMSW are 25% by 2010, 50% by 2013 and 65% by 2020, against a 1995 baseline.
**BMW is regarded as 60% of MSW for calculation purposes.
South Ayrshire Council currently uses three private landfill sites and a number of recycling outlets to dispose of municipal waste.

1 - Waste Disposal
The bulk of the Council's wastes are disposed of at Barr Environmental's Garlaff Landfill Site near Cumnock through a long-term waste disposal agreement. Municipal wastes arising in the South of the District are disposed of at Straid Landfill Site, Lendalfoot and Tarbolton Landfill Site is also used for some limited disposal.

2 - Recycling
Paper, cardboard, glass, cans, metals, wood, oil, textiles and garden wastes are all collected and recycled or composted at various merchants or treatment plants.

The council's recycling and composting rate for municipal waste in 2001/2002 was 8.7%.

3 - Home Composting
The council has recognised that waste minimisation and waste reduction is at the very top of the waste hierarchy and has embarked on an ambitious home-composting project, which has resulted in over 11,000 new home-compost bins being introduced within the district over the last 3 years. This is one of the highest implementation rates of home composting of any local authority in Scotland.

The council is working in partnership with the West of Scotland Agriculture College at Auchincruive to assess the benefits in home composting in diverting BMW from landfill.

Since the home-composting project was implemented, however, the amount of municipal waste landfilled by the council has reduced from 79,112 tonnes in 1999/2000 to 73,319 tonnes in 2001/2002. This diversion rate is significant, especially when achieved at the same time as municipal waste arisings are increasing at the rate of 2–4% per annum. The council will continue to promote home composting as an integral part of its long-term waste-management strategy.

Value Statement
South Ayrshire Council supports entirely the aims and objectives of the National Waste Strategy for Scotland and has decided to achieve these aims initially through implementation of the waste hierarchy, i.e. to reduce, reuse and recycle waste before considering other treatment or different options.

With this in mind the council has recently decided to introduce a three-bin source segregated 'alternate weekly' recycling service for household waste. The council and SEPA are of the view that this system offers the BPEO for maximising recycling and composting of household waste.

Three-Bin Recycling Service
Each householder with a wheeled bin will be provided with two additional wheeled bins – a blue bin for paper, cans, cardboard, plastics, textiles and a brown bin for organic garden waste and kitchen vegetable waste.

The frequency of collection will be as follows:

- **Week 1** – General refuse
- **Week 2** – Green waste (organic garden waste and kitchen vegetables)
- **Week 3** – General refuse
- **Week 4** – Dry recyclables (paper, cardboard, cans, plastics and textiles)

The contents of the blue bin will be processed at a materials recycling facility and the wastes passed on for recycling. The contents of the brown bin will be processed at a centralised composting facility and the compost utilised for landscaping, derelict land re-development, agriculture, or for sale.

The council believes that the 'alternate weekly' collection system will encourage householders to participate in recycling and composting and will achieve the maximum segregation of wastes at source, not entailing excessive costs.

The housing stock in South Ayrshire also lends itself to a wheeled bin type of recycling service and it is estimated that over 90% of houses will be able to accommodate the system. For those remaining, 10% of houses, an alternative type of kerbside recycling service will be offered, e.g. survival bags, a box collection or other appropriate method.
Other Council Waste Streams

The source segregated three-bin collection system for householders could also be utilised for collecting commercial and industrial wastes to increase recycling and composting of that waste stream.

Other waste streams such as the council’s bulky uplift service commercial waste, street cleaning wastes, beach cleaning wastes and civic amenity site wastes will all be examined with a view to increasing more segregation at source and/or to increase recycling and composting.

Recent improvements to civic amenity sites have introduced more containers for segregation of garden and wood wastes in particular. Additional glass recycling banks will be introduced within the district as it is recognised that initially, the three-bin household recycling service will not collect glass. However, it is intended at some time in the future, to also provide a recycling collection service for glass from householders.

Recycling collection services for glass, cardboard and cans are currently offered to businesses and it would be proposed to extend this range of services in future to include, paper, plastics, green wastes, etc.

The council wishes to achieve a minimum 25% recycling and composting target for wastes collected by 2006. The council will also continue to encourage the reuse and reducing of waste through home-composting in particular as it is recognised that waste minimisation is at the very top of the waste hierarchy.

Partnership Working

The council works with a great many partners within the community and the waste-management sector. This includes householders, the business sector, schools and colleges, not-for-profit organisations, waste disposal contractors and recycling merchants.

In addition, the council is a member of the Ayrshire Waste Management Advisory Group and works in partnership with both North and East Ayrshire Councils in particular to improve recycling and composting rates within the area, as well as to exchange knowledge and ideas on all areas of waste management, including litter abatement and education programmes.

Targets

As indicated in the AWP, the council is committed to achieving a recycling and composting rate of between 49 and 62% for all types of waste collected by the council by the year 2020. The speed at which this increase in recycling and composting progresses will depend on a number of factors, particularly funding and resourcing issues but indicative interim targets are detailed in Table 1 below.

Annex 6. Figure 1 - South Ayrshire Council Recycling and Composting Targets for Municipal Solid Waste (MSW)
The council will continue to evaluate emerging technologies in the field of waste treatment and any municipal wastes not recycled or composted will be considered for such treatment as an alternative to landfill disposal.

Figure 1, on page 85, includes the following targets:

<table>
<thead>
<tr>
<th>SAC Performance Criteria</th>
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<th>2013</th>
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<td>65%</td>
<td></td>
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<tr>
<td>Diversion (as % of total MSW)</td>
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<td>30%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Recycling (dry recyclate)</td>
<td>15%</td>
<td>20%</td>
<td>25%</td>
<td>35%</td>
</tr>
<tr>
<td>Composting</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
<td>27%</td>
</tr>
<tr>
<td>Total Recycling and composting</td>
<td>25%</td>
<td>35%</td>
<td>45%</td>
<td>62%</td>
</tr>
</tbody>
</table>

* Composting includes home-composting

Annex 6. Figure 2* – Reduction of Municipal Waste to Landfill

This chart indicates the reduction in MSW going to landfill as a result of increased recycling and composting within South Ayrshire. Waste treatment will be considered after 2013 for wastes that cannot be recycled or composted.

*Based on a 2% annual increase in waste arisings each year (using 2001/02 baseline figures with recycling rate of 9%, total waste arisings for 2001/02 = 77,230 tonnes)

*Not based on 1995 MSW tonnages, which have still to be allocated.
Infrastructure and Facilities Required

Centralised Composting
Currently South Ayrshire Council collects and transports approximately 1200 tonnes a year of green organic waste for composting to a licensed site in North Ayrshire. There is also one other licensed composting site in North Ayrshire, which could deal with any increased tonnages of green waste generated by South Ayrshire Council.

However, bearing in mind the 'proximity principle', discussions are ongoing with a number of partner organisations to consider the provision of a composting outlet within South Ayrshire. The council may also wish to consider carrying out the centralised composting provision itself, but as yet, no decision has been made on this item.

Dry Recyclables
A clean MRF will be required to process the contents of the blue wheeled bin by segregating the paper, cardboard, cans, etc., into their different waste streams and passing these materials onto the recycling markets.

Currently, East Ayrshire Council operates one clean MRF and there are other MRFs in Glasgow and Linwood. Again, the council has not taken any decision on the location or otherwise of a MRF and may also wish to consider carrying out this function themselves.

Both the composting outlet and the MRF provision will be the subject of further reports to the Council's Waste Management and Litter Joint Working Group as part of the implementation plan for the three-bin recycling service.

Landfill
The council currently utilises three privately owned landfill sites for the disposal of wastes and it is not anticipated that any new landfill provision is required within South Ayrshire for the foreseeable future.

Infrastructure Requirements
As indicated, no decisions have been taken by the council with regard to the location or the provider of these treatment facilities, but in general terms, the following infrastructure would be required to sustain the three-bin source segregated recycling service:

➔ Provision of two centralised composting facilities
➔ Provision of two materials recycling facilities/waste transfer facilities
➔ Provision of two civic amenity/recycling centres
➔ Provision of two new technology/treatments processes.

Whether these two infrastructure requirements are provided within South Ayrshire's boundaries or existing facilities outwith South Ayrshire are used has still to be decided. That decision can only be made after evaluating all the factors involved such as costs, transport, environmental issues, best value, etc., and this will form part of our Implementation Plan.
East Ayrshire Council Updated Position Statement

East Ayrshire Council has used a private contractor for the transfer loading, transport and disposal contract for municipal waste since 1996. In 1996 an initial 5-year contract was awarded to a contractor with a potential 2-year extension period. The council utilised the 2-year extension in 2001 and the existing extended contract is due to terminate in May 2003. The impending finalisation of the AWP and the council’s intention to comply with the recent announcement of 25% recycling by 2006 has led to a decision to offer a short-term, 12-month contract to commence in May 2003.

The current contract provides for the council’s refuse collection vehicles discharging at two transfer stations provided and operated by the contractor. The contractor then bulk transfers the waste to a disposal site at Garlaff, by Skares.

During 2003, the Council will prepare a specification for a new waste disposal contract which is scheduled to commence in May 2004. The contract will have a life of 20 years. The contract specification will be prepared in the light of a number of considerations:

➔ the requirement for the Council to comply with the EU Directive on Landfill
➔ the contract to meet the aspirations of the Ayrshire, Dumfries and Galloway Waste Strategy Area Plan
➔ the contract to meet the specification set out in guidance from the Scottish Executive for councils wishing monies from the Strategic Waste Fund
➔ the council’s commitment to the expansion of two successful pilot schemes for kerbside recycling and the operation of a materials recycling facility
➔ the council’s intentions to offer a separate service for the collection of ‘green’ garden waste for all appropriate households as and when suitable funding becomes available
➔ the ability of bidders to take cognisance of innovative and novel methods of waste minimisation, reuse, recycling, composting, etc.
➔ the requirement of the successful bidder to provide two upgraded waste recycling/civic amenity sites for improved public co-operation and participation.

During the financial year 1999/2000 the council recycled 2.1% of its MSW. During the period 2000/2001 the figure was increased to 2.3%.

The expansion of the existing kerbside recycling service to include a further 7,000 domestic properties in October 2002 is expected to boost the recycling figure to 5% by the end of 2003/04.

Having regard to the success of North Ayrshire Council in introducing the brown-bin system, East Ayrshire Council has joined in partnership with North and South Ayrshire Councils recently to propose the introduction of a three-bin system of source-separated domestic waste collection throughout Ayrshire. East Ayrshire Council anticipates that one bin would be used for ‘green’ garden waste, the second bin for paper, cardboard, pamphlets, etc., with the third bin being used for all residues. The proposal is currently being worked up by the Caledonian Shanks Centre for Wastes Management and is to be the subject of a bid to the Strategic Waste Fund.

It is anticipated that with these new measures in place, the council can meet the 25% total recycling target which is to be met (as announced by the Scottish Executive) by 2006.
Key Drivers

East Ayrshire Council has traditionally maintained environmental issues among the number of key agenda items. The council has a good record of promoting environmental initiatives and following the identification of the waste-management function as being suitable for joint working between the three Ayrshire authorities, took lead responsibility.

The council sees the Ayrshire, Dumfries and Galloway Waste Strategy Area as an opportunity to investigate areas of closer co-operation and to share experiences. A direct consequence of this sharing is the proposal to introduce the three-bin system in Ayrshire. The council’s current strategy documents clearly confirm the council’s intention to comply with all legislation (specifically the EU Directive on Landfill).

The announcement by the Scottish Executive of a target of 25% of municipal waste to be recycled or composted by 2006 provides an added incentive for the council to ensure that the new Waste Disposal Contract will not only meet the minimum statutory targets but also offer the opportunity to set accelerated targets which may prove exemplars to others.

Value Statements

East Ayrshire Council will award a contract that will compliment the council’s existing and future aspirations for source separation, minimisation and recycling of waste.

East Ayrshire Council will seek to achieve the 25% recycling target which the Scottish Executive has set for municipal waste by 2006.

The introduction of expanded source separation services for domestic premises coupled with the exploration of the potential for expansion of the council’s network of ‘bring’ recycling sites will facilitate a reduction in the amount of municipal waste requiring pre-treatment prior to landfill.

As the council does not currently have the resources to introduce (and service) a three-bin system of household source separation, financial support from the Strategic Waste Fund is essential.

Targets

East Ayrshire Council has been involved since 1996 in the development of the Ayrshire Waste Management Advisory Group and supports and leads the concept of the three council’s working towards sharing of expertise, services, resources, etc. The council also promotes and encourages waste minimisation, recycling, etc projects and exercises offered by the community sector and not-for-profit organisations.

2006/2010/2013 Targets

The specification for the new waste treatment and disposal contract requires the successful bidder to meet the statutory diversion targets as a basic minimum. The specification is flexible enough to allow bidders to offer accelerated timetables for meeting the diversion targets and the 25% recycling target recently announced by the Scottish Executive.

All bidders for the new contract due to commence in May 2004 will be made aware of the fact that tenders will be subject to the BPEO scrutiny regime and will have to comply with the final version of the Ayrshire, Dumfries and Galloway Waste Strategy Area Plan, otherwise the Council will not be able to make application for support from the Strategic Waste Fund.
Performance Management

East Ayrshire would suggest the following aspirational targets:

<table>
<thead>
<tr>
<th>EAC Performance Criteria</th>
<th>2006</th>
<th>2010</th>
<th>2013</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversion (as % BMSW)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diversion (as % of total MSW)</td>
<td>15%</td>
<td>30%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Recycling (dry recyclate)</td>
<td>20%</td>
<td>25%</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Composting and home composting</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Total recycling</td>
<td>25%</td>
<td>35%</td>
<td>40%</td>
<td>55%</td>
</tr>
<tr>
<td>MSW treatment</td>
<td>65%</td>
<td>60%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Segregated collection (as % of households)</td>
<td>80%</td>
<td>90%</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>Landfill</td>
<td>65%</td>
<td>50%</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>

These aspirational targets may be bettered depending on the outcome of the current tender evaluation exercise; finance available from the Strategic Waste Fund, etc.

Infrastructure

The contract specification for the council’s new waste treatment and disposal contract will require the contractor to provide the following:

1. Two waste transfer stations within a five mile radius of Kilmarnock and Cumnock town centres
2. A minimum of two and a maximum of three new waste recycling/civic amenity sites within a 5 mile radius of Kilmarnock and Cumnock town centres
3. A minimum of one and a maximum of two waste treatment plants capable of processing municipal waste
4. Optional facilities for the reception, treatment and processing of source-separate ‘green’, paper, etc. and other waste collected by the council
5. Access to landfill facilities for the disposal of any residues resulting from the various treatment processes.
North Ayrshire Council

North Ayrshire Council has a tradition of self-sufficiency in their waste-management arrangements.

Current waste disposal is carried out utilising a landfill site at Brodick serving the Island of Arran and a landfill site at Shewalton, Irvine serving the mainland and the Island of Cumbrae.

As regards the landfill site at Shewalton, it is likely that landfilling will continue on the current site until August 2005, subject to the satisfactory outcome of ongoing discussions with SEPA. Thereafter it is proposed to make use of another area at Shewalton for which planning permission is already in place and IPPC application submitted, which should facilitate another 8 years landfilling. The latter site will be fully contained and as indicated is the subject of an IPPC application to SEPA.

During the financial year 1999/2000 the council recycled/composted 3.6% of its municipal solid waste. During the period 2000/2001 the figure increased to 8% as a result of the commencement of a scheme for the composting of green waste. A reduction in the recycling figure from 8% to 6.75% in 2001/2002 is expected due to transitional arrangements for introducing the brown bin system in a phased method. Indications for 2002/2003 following the complete introduction of brown bins to all households requiring them will result in recycling figures rebounding to nearer 15% for the period 2002/2003.

At the present time the Council is the only Scottish Council to have made a multi-bin system available to all of its households on the mainland.

Key Drivers

Three key drivers for change in the way waste is managed in Ayrshire and Dumfriesshire were identified in the September report. Firstly, there is the impact of the Euro policies on the environment and the Euro response to the United Nations Conference on the Environment and Development in 1992. Secondly, there was the importance of developing a global economy and the need for Ayrshire and Dumfriesshire to ensure that Scotland’s economy is sufficiently efficient to compete in the UK, European and global context. Thirdly, there was a direct effect of individual legislation, such as the EU Landfill Directive.

A fourth key driver has now been identified in that the Scottish Executive have advised local authorities that there will be a target of 25% of municipal waste to be recycled or composted by 2006 with a reduction of BMW to landfill to 1.5 million tonnes in 2006. These latter targets, whilst significant can be accommodated within the council’s aims and objectives involving waste management.

Value Statements

North Ayrshire Council supports the key principles of sustainable development and through extension of its source separated collection system aims to achieve the targets shown in the AWP.

North Ayrshire Council will seek to achieve the 25% recycling target for municipal waste set by the government by 2005.

North Ayrshire Council will seek to reduce the amount of municipal waste requiring pre-treatment prior to landfill through its commitment to reuse recycling and composting, i.e. source-separated collections.

North Ayrshire Council propose to achieve its targets with initial emphasis on maximising recycling and composting as evidence by the provision of a second 240 litre bin to all participating households, for green waste by 2002.

Targets

North Ayrshire Council currently participates in the Ayrshire Waste management Advisory Group along with East Ayrshire Council and South Ayrshire Council and will consider the development of partnering arrangements with neighbouring local authorities, community sector, not-for-profit organisations, in order to achieve diversion and recycling targets.
2006/2010/2013 Targets

The council proposes to meet the targets laid down in the AWP the development of a modular approach. It is proposed the 2006, 2010 and 2013 will be achieved through maximising a source separated recycling and composting approach. This will involve:

1. **Composting:** The collection of 8-10,000 tonnes of green waste from households within North Ayrshire, with the exception of Arran. As previously indicated all participating households are now in receipt of a 240-litre brown bin for the collection of green waste that is uplifted by the council and composted as part of a partnership arrangement.

2. **An Element of the Collection of Recyclables via Kerbside Schemes:** The council is actively considering extension of source-separated collection systems throughout the council area.

3. **Expansion of Civic Amenity Site Provision including Mini Recycling Centres:** The council has recently purchased a new vehicle with the facility for picking up 30m3 boxes and the intention is that further provision will be made at the council’s four civic amenity sites for the collection of green waste and timber waste that will be forwarded for composting and recycling. The council uplifts approximately 14-15,000 tonnes of civic amenity waste and this waste stream has been identified as being particularly suitable for recycling.

4. **Expansion of Recycling Banks:** Further expansion of the recycling banks is proposed which should result in an uplift in recycling figures. Currently the council has recycling banks for paper, glass cullet, textiles, aluminium cans, waste oil, etc. Steel cans are extracted from the municipal waste stream using metal extraction at the council’s pulverisation plant. Ongoing discussion is taking place with the two main glass manufacturers within the UK regarding increasing the council’s glass recycling figure significantly.

2010/2013/2020 Diversion Target

The council, taking the actions highlighted above and utilising available landfill space anticipates its 2010 targets will be met, and possibly the 2013 targets. However, it will not be possible to achieve the 2020 diversion targets without development of a strategic option for MSW, a process that the council has not embarked on. The council would regard consideration of a process to achieve the 2020 target as premature in light of emerging technologies.

The council is of the view, that the achievement of the 2020 diversion target will involve it in a joint venture arrangement with a third party, yet to be determined. There are a number of emerging technologies that are yet to be fully trialed and evaluated within a Scottish context and accordingly the council do not see any requirement at this time to tie themselves to any technology.

Infrastructure Requirements

As previously indicated North Ayrshire Council currently operates a self-sufficiency policy. It is proposed that the council will seek to provide the identified capacities within their own area and the implications for the authority are as follows:

➔ Provision of one centralised compost facility
➔ Provision of one clean MRF facility or outlet
➔ Provision of one centralised treatment facility
➔ Provision of one new landfill facility
➔ Provision of one new civic amenity site/transfer station.
Performance Measurement

North Ayrshire Council would suggest the following aspirational targets:

<table>
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<td>50%</td>
<td>25%</td>
<td></td>
</tr>
</tbody>
</table>

Whilst the council will do everything in its effort to achieve the above targets it has to be pointed out that a number of factors will have a bearing, namely funding and resourcing issues and the outcomes of the IPPC application currently with SEPA.
Dumfries and Galloway Council

Dumfries and Galloway Council has seven licensed landfill sites. Three are operational and licensed to accept MSW. The other four are licensed but are in post closure and restoration stage, only taking inert waste by appointment. It is the council’s intention to close and restore the main site in the east of the authority area (Locharmoss) as soon as practicably possible. Auchinines near Dalbeattie will be extended and re-engineered to meet containment requirements of the licence for long term use. The third active site at Galdenoch, Leswalt, Stranraer is in the west of the authority area. It is a relatively small site and accepts waste from the Wigtown area. The site will also be extended and re-engineered for long-term use.

To address its waste-management responsibilities for the future, the council is already procuring a waste-management/recycling project through a Private Finance Initiative (PFI), which is intended to run for 25 years. The contract will deal with the treatment and disposal of all MSW collected by the council. It aims to meet the requirements of the EC Landfill Directive (99/31/EC) and increase recycling. The Project Company will also be required to manage and operate the council’s civic amenity/recycling sites, recycling bring sites and to progressively restore all the council’s active and inactive waste disposal sites.

Dumfries and Galloway Council is in a position to put forward the Project Company’s proposals for consideration as providing the BPEO for its area.

Tendering and BPEO

The PFI project was drawn up before the development of the AWP. Its main criteria were:

➔ a need to satisfy domestic and European waste-management legislation
➔ a need to deliver value for money
➔ a need to comply with regulation at waste facilities
➔ a need to secure twenty-first century investment for 21st century legislation and regulation.

The requirements of the developing AWP were introduced as the tendering process progressed. In particular, the need to fit specifically with the AWP and the need to demonstrate BPEO for the waste streams being processed in the chosen option were emphasised.

The process followed was a gradual focusing down through the stages of:

1. Invitations of expressions of interest through advertising in European and UK journals and press
2. Issue of pre-qualification questionnaires (37 issued)
3. Return of pre-qualification questionnaires (nine received from major waste companies)
4. Shortlisting companies to receive invitation to negotiate (four companies)
5. Receipt of formal bids (three companies)

Dumfries and Galloway Council was also required to prepare a Public Sector Comparator, which represented the waste-management option the council would have proceeded with had it had the appropriate funding available. This option was fully costed, primarily as a means of judging the value for money and cost benefits of the options put forward by the various bidders.
Preferred Option

The preferred option provides an east/west solution. About 75% of the MSW will be taken to a centralised pre-treatment plant near Dumfries. The proposed pre-treatment is the Eco-Deco system (refuse-derived fuel plant).

1. Waste is shredded and fed into drying areas. Water is driven off by a forced air feed and natural heat generated from the initial stages of composting.
2. A residue of relatively cleaner and much drier waste is sorted for the removal of metals and glass for recycling.
3. The remainder of the material is then converted to a refuse-derived fuel (RDF) which can be used as feedstock in a suitable energy from waste plant.

An independent company, BATNEEC Dumfries Ltd. have planning permission for a pyrolysis/gasification plant just outside Dumfries. If this route does not become available then alternative outlets for the fuel will be established. Such an approach does not preclude identifying future means of recovering or recycling the RDF material should technologies change.

The waste in the west area (approximately 25% of total MSW) will continue to go to landfill at Galdenoch, with pre-sorting for composting (approximately 20% of that total) and recycling through civic amenity/recycling sites and bring facilities.

Determination of BPEO

To check that the preferred option fits with the Area Waste Planning process, the council subjected all the bids, plus their Public Sector Comparator, to the BPEO analysis using the options appraisal tool developed for this purpose by SEPA.

The options appraisal exercise was undertaken by:

1. Officers of the council’s PFI project team
2. Representatives from the technical consultants employed by the council
3. SEPA officers

Results of the analysis are attached below. This level of analysis came out in favour of Dumfries and Galloway Council’s preferred option. A variant using a source-segregated collection of waste scored even better. It is proposed, therefore, to introduce source segregated collections throughout Dumfries and Galloway to further increase diversion and recycling figures.

Points to note about the exercise are that no weighting was attached to any of the national criteria, (i.e. they were all given the same relative importance). The overall rating is taken as an average of the scores given to each of the national criteria. The ratings for each of the criteria were all judged relative to landfill (i.e. the overall rating is an assessment of how much better the system is than relying solely on landfill).

Note: none of the national criteria is weighted, therefore the determination of the BPEO is not based solely on the environmental analysis. Note: it is an integral part of the tender specification that all the proposals must meet the diversion targets.
### Table 1 - Dumfries and Galloway Option Appraisal Comparison

<table>
<thead>
<tr>
<th>National Criteria</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Air, land and aquatic environment</td>
<td>C+</td>
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<tr>
<td>Cultural heritage</td>
<td>C</td>
</tr>
<tr>
<td>Global climate change</td>
<td>B</td>
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<tr>
<td>Local amenity</td>
<td>D</td>
</tr>
<tr>
<td>Natural heritage</td>
<td>B+</td>
</tr>
<tr>
<td>Non-renewable resource use</td>
<td>C+</td>
</tr>
<tr>
<td>Accidental risks</td>
<td>D</td>
</tr>
<tr>
<td>Overall costs - cost and operational costs</td>
<td>C</td>
</tr>
<tr>
<td>Financeability/affordability</td>
<td>C</td>
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<tr>
<td>Impact on local economy</td>
<td>B-</td>
</tr>
<tr>
<td>Employment (all options are +)</td>
<td>B-</td>
</tr>
<tr>
<td>Making producers responsible</td>
<td>C</td>
</tr>
<tr>
<td>Public acceptability</td>
<td>C-</td>
</tr>
<tr>
<td>Skills base</td>
<td>B+</td>
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<tr>
<td>Social implications (poverty, exclusion and access)</td>
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<td>Flexibility</td>
<td>B-</td>
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<tr>
<td>Making the best use of existing facilities and expertise</td>
<td>C+</td>
</tr>
<tr>
<td>Practical deliverability</td>
<td>C-</td>
</tr>
<tr>
<td>Technical feasibility</td>
<td>D</td>
</tr>
<tr>
<td>Compliance with other policies</td>
<td>C</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>C+</td>
</tr>
</tbody>
</table>

Note: Scoring A-D (where 'A' is best and 'D' is worst)

### Brief Description of Options

**Option 1**
- Energy from waste led (50%), serviced by dirty MRF and supported by composting (25%) and recycling (15%) with residual landfill outwith the area.

**Option 2**
- Three quarters of waste supported by bio-pretreatment (60%) feeding energy from waste (50%) and recycling for metals and glass, with residuals to landfill. One-quarter supporting composting and landfill option.

**Option 3**
- Primarily landfill. Three-quarters source separated. Feeding clean MRF for composting and recycling (25%) with residuals at new landfill. One quarter same but recyclate transferred to Dumfries and residuals landfilled at existing site.

**Option 4**
- Energy from waste led (90%) with minimum recycling and composting (10%). Ash disposal (30% of 90%) outwith area.

**Option 5**
- Source segregated variant of option 2. Source segregated for composting and recycling.
**WISARD Analysis**

As well as the appraisal, SEPA used a computer programme called WISARD for its environmental analysis of the environmental impacts. Table 2 summarises the results. This indicates that the option with the least negative environmental impact is Option 5 (a source segregated variant of the council’s preferred bid, Option 2). As stated above, it is proposed, therefore, to develop this additional element to enhance the preferred option.

Table 2 below was designed as an aid to ranking AWP options on environmental criteria using the outputs from the WISARD. This simply ranks the impacts on an equal basis. The first three impacts are those that should be taken into account by all WSAGs as they are of national importance. The weighting factors for these cannot be changed. The remaining impacts are those which can be taken into account where a local group considers it necessary. The weighting factors on these can be changed.

When assessing the five options, each impact is scored with 1 the best and 5 the worst. The scores are entered in the table and the weighted results are automatically calculated. The options can then be ranked in order of environmental performance.

**Table 2 - Unweighted results**

<table>
<thead>
<tr>
<th>Environmental impact</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Global warming</td>
<td>5</td>
</tr>
<tr>
<td>Depletion of non-renewable resources</td>
<td>5</td>
</tr>
<tr>
<td>Ozone depletion</td>
<td>5</td>
</tr>
<tr>
<td>Acidification</td>
<td>5</td>
</tr>
<tr>
<td>Eutrophication</td>
<td>5</td>
</tr>
<tr>
<td>Human toxicity</td>
<td>5</td>
</tr>
<tr>
<td>Aquatic toxicity</td>
<td>5</td>
</tr>
<tr>
<td>Terrestrial toxicity</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total Score</strong></td>
<td>40</td>
</tr>
<tr>
<td><strong>Ranking of Options</strong></td>
<td>5</td>
</tr>
</tbody>
</table>

Note: It must be noted that this matrix is simply a tool to assist in interpreting the results from WISARD. There is no scientific or statistical basis to the weightings, they are ranked subjectively on the basis of the relative accuracy of the impacts tools available, and/or the relative importance of the impact.

**Costs**

As Dumfries and Galloway Council is still involved in the bidding process it is not possible to provide a detailed costing comparison of the options presented. However, the options are ranked in Table 13, under Overall Costs, Option 2 (the council’s preferred bid) being the least cost.

**Additional Factors**

The council has undertaken an extensive consultation process to determine the general acceptability of the waste treatment and disposal option. It has also gauged public opinion on introducing source-segregated waste collection and/or enhanced recycling facilities to boost recycling and composting figures. A doorstep survey of attitudes to waste, recycling, etc., has been carried out. The council is committed to further expansion of its recycling banks and civic amenity facilities.

Importantly, the proposal is sized to cope with the 2010 projected waste figures at the upper growth rate of 2% (see SWMBA appendix 2).

There has been extensive media and press coverage of the PFI process. Five roadshows to explain the PFI project in Dumfries, Annan, Dalbeattie, Stranraer and Newton Stewart were well attended by the public.
Final Results – Proposed BPEO Implementation

Dumfries and Galloway Council has proposed Option 2 as the preferred bid to form its BPEO. The Council is further proposing to enhance Option 2 with source segregated household collections (Option 5) to achieve an even better BPEO result.

Table 3 – Summary of Final Results

<table>
<thead>
<tr>
<th></th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division targets</td>
<td>Yes</td>
</tr>
<tr>
<td>Costs ranked from comparison table</td>
<td>c</td>
</tr>
<tr>
<td>WISARD impacts</td>
<td>5</td>
</tr>
<tr>
<td>Options appraisal</td>
<td>c+</td>
</tr>
</tbody>
</table>

Note: As can be seen, the preferred option is chosen on a balance of outcomes. Further consideration is being undertaken on enhancing the preferred bid by introducing source-segregated collection of materials by the council as a means of achieving a fully integrated waste-management solution.

Project Details

Dumfries and Galloway Council supports the key principles of the waste hierarchy, BPEO and sustainable development.

Through the implementation of its Waste-management/Recycling PFI Project the Council will deliver an integrated waste-management service in accordance with these principles to collect, treat and dispose of the Council’s waste for the next 25 years.

The various infrastructure proposals for Dumfries and Galloway Council’s Waste-management/Recycling Private Finance Initiative (PFI) Project are set out below.

Galdenoch Waste Disposal Site, Leswalt, Stranraer

- The waste disposal site will be developed and engineered to the highest environmental standards to accept waste for the next 25 years.
- The site will continue to provide a civic amenity/recycling facility for household discards free of charge.
- A reception facility will be provided to accept MSW collected by the council in the Wigtown area from refuse collection vehicles (RCVs) where the waste will be sorted into components for recycling, composting and landfilling.
- Composting facilities will be provided and the compost produced will be used to help reinstate the site as operations progress.
- The site will continue to receive commercial and industrial waste on a market led basis.
Aucheninnes Waste Disposal Site, Dalbeattie

→ The Waste Disposal Site will be developed and engineered to the highest environmental standards to accept waste for the next 25 years.

→ The site will accept inert materials, recycled compostable material and any surplus fuel from the refuse-derived fuel plant at Dumfries.

→ The site will continue to receive commercial and industrial waste on a market led basis.

Transfer Station: Stewartry

→ A transfer station will be provided to accept and bulk up all Stewartry MSW (waste collected by the council) only, for forward transmission to treatment facilities in Dumfries. All operations carried out indoors.

→ Civic amenity/recycling site to be provided (to replace existing at Aucheninnes Waste Disposal Site) for household discards only (waste for recycling and bulky items which will not fit in wheeled bins) free of charge.

Locharmoss Waste Disposal Site, Dumfries

→ The waste disposal site will be used until alternative facilities become available. The target is to close, and cap the site within the next 2-3 years, followed by full restoration.

→ The site will continue to provide a civic amenity/recycling facility for household discards free of charge.

→ A reception and treatment facility Eco-Deco system (refuse-derived fuel plant) will be provided to receive, sort and treat MSW producing a fuel (solid flock) or recyclables. Any residues will be transferred to Aucheninnes Waste Disposal Site.

→ The fuel produced will be transferred to a thermal treatment plant.

→ A private company (outwith the PFI Project) has planning consent to build a Pyrolysis Plant (compact power plant) next to Locharmoss which will convert the fuel into electricity. The commissioning of this plant is not within the project control.

→ Locharmoss Waste Disposal Site will continue to receive commercial and industrial waste on a market led basis until the site is closed.

→ The Eco-Deco Plant (refuse-derived fuel plant) will not accept third party waste on a commercial basis.

→ The Eco-Deco Plant (refuse-derived fuel plant) will receive all Stewartry, Nithsdale and Annandale and Eskdale MSW collected by the council.

Corsehill Waste Disposal Facilities, Annan

→ The existing Transfer Station will receive MSW collected by the council in Annandale and Eskdale for bulking up and onward delivery to the treatment facilities in Dumfries.

→ The site will continue to provide a civic amenity/recycling facility for household discards free of charge.
Existing Civic Amenity/Recycling Sites

➔ These facilities at Blacks Plantation, Whithorn; Jocks Loaning, Dumfries; Gatelawbridge, Thornhill; St Mary’s Street, Sanquhar; Muirhead, Lockerbie; and Station Yard, Beattock; will continue to operate and receive household discards free of charge to support recycling initiatives.

Existing Inert Waste Landfill Sites

➔ These facilities at Blacks Plantation, Whithorn; Gatelawbridge, Thornhill; St Mary’s Street, Sanquhar; and Corsehill, Annan; will be closed, capped and restored.

The council through its Waste-management/Recycling PFI Project will also look at enhancing the provision of civic amenity/recycling sites and ‘bring’ centres for the benefit of communities in Dumfries and Galloway.

Kerbside segregated collections will also be considered for introduction into the collection service to encourage households to separate out waste at source to enhance recycling and diversion figures. Education projects will be introduced to aid the introduction of any kerbside segregated collections and to enhance waste minimisation and home-composting.

The performance indicators against which the progress towards delivering the BPEO will be assessed will be measured against the targets in the table below.

<table>
<thead>
<tr>
<th>EAC Performance Criteria</th>
<th>2006</th>
<th>2010</th>
<th>2013</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversion % of BMSW</td>
<td>19%</td>
<td>51%</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>Diversion % total MSW</td>
<td>11%</td>
<td>31%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Recycling dry</td>
<td>12%</td>
<td>14%</td>
<td>17%</td>
<td>20%</td>
</tr>
<tr>
<td>Composting and home composting</td>
<td>9%</td>
<td>12%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Total recycling</td>
<td>21%</td>
<td>26%</td>
<td>32%</td>
<td>35%</td>
</tr>
<tr>
<td>MSW treatment</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>Segregated collection</td>
<td>20%</td>
<td>40%</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>Landfill</td>
<td>68%</td>
<td>43%</td>
<td>28%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Note: BMSW = 60% of MSW for calculation purposes